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What the American Honey Institute Promises to the Future of Beekeeping

By L. C. Dadant

TODAY the greatest question is how and where to sell the honey crop to yield a fair price and a net profit. Orange growers, nut growers, apple growers, in fact dozens of producers from butter beans to sauerkraut advertise from one end of the country to the other, telling why the particular product should be consumed for the good of human health.

Honey, however, has not been placed before the public by means of extensive advertising. Beekeepers are so widely scattered and their interests so divergent that it has not been possible to get them together for cooperative efforts to popularize honey.

Many beekeepers have done fine work locally in educating the public. Honey bottlers have expended money for advertising, but these efforts have been spasmodic and there has been no widely planned consecutive attempt to educate the public.

The Bee Culture Laboratory at Washington, D. C., has disseminated information about honey and has done wonderful work in securing help from the Department of Commerce whereby honey may be exported to greater advantage. It is now working on important honey problems which will be of vast help.

The Colorado Honey Producers' Association, headed by Frank Rauchs, has probably done more than any other 'beekeepers' organization in setting standards for comb honey and in educating the public to its use. This association is still very active and of great help in the industry.

The Mountain States Honey Producers' Association, controlling hundreds of carloads of honey in the larger producing areas, is doing a wonderful work in stabilizing the honey market.

These various agencies are directly interested in making honey an important food. During the summer and fall of 1927, when honey was a drug on the market and when the whole industry was affected by the lack of interest in it, a number of bee supply manufacturers, honey bottlers and jobbers were called together by Mr. Lewis Parks of the G. B. Lewis Company. Mr. Parks had had considerable experience with cooperative organizations because of his connection with the Bakers' Association and with the American Bakers' Institute. It was definitely decided at this meeting that very little could be done for the industry unless it were possible to engage a paid secretary to handle the work necessary to give honey the publicity it deserved.

However, it was our good fortune to secure the services of Dr. H. E. Barnard, now President of the Institute. It is he who has guided its work so satisfactorily.

In order that beekeepers may know who is back of the work of the Institute and to whom credit should be given for financing it since its organization, I am pleased to submit the following list of subscribers:

Manufacturers of Bee Supplies

- A. I. Root Company, Medina, Ohio.
- G. B. Lewis Company, Watertown, Wisconsin.
- Dadant & Sons, Hamilton, Illinois.
- Fred W. Muth Company, Cincinnati, Ohio.
- August Lotz Company, Boyd, Wisconsin.
- Superior Honey Company, Ogden, Utah.
- American Manufacturing Concern, Jamestown, New York.
- A. G. Woodman Company, Grand Rapids, Michigan.

A. I. Root Company, Council Bluffs, Iowa.

Standard Churn Company, Wapakoneta, Ohio.

A. H. Rusch & Son Company, Reedsville, Wisconsin.

A. I. Root Company, San Antonio, Texas.

Honey Bottlers and Packers

Preserves and Honey, Inc., Brooklyn, New York.

J. G. Paton Company, New York City.

H. F. Botsford Company, Carnegie, Pennsylvania.

Hamilton, Wallace & Bryant, Los Angeles, California.

American Molasses Company, New York City.

Container Manufacturers

The American Can Company, Chicago, Illinois.

Continental Can Company, Chicago, Illinois.

Hart Glass Company, Dunkirk, Indiana.

Hazel-Atlas Glass Co., Wheeling, West Virginia.

Owens-Illinois Glass Company, Chicago, Illinois.

Tygart Valley Glass Company, Washington, Pennsylvania.

Queen Breeders and Bee Shippers

Jasper Knight, Hayneville, Alabama.

Stover Apiaries, Tibbee Station, Mississippi.

Beekeepers' Associations Organized for Profit

Colorado Honey Producers' Association, Denver, Colorado.

Mountain States Honey Producers' Association, Boise, Idaho.

Sioux Honey Association, Sioux City, Iowa.

**Beekeepers' Associations Organized
Not for Profit**
American Honey Producers'
League, Fargo, Dakota.

This represents the sources of income for the Institute. During the first year from April 1, 1928 to April 1, 1929, the budget consisted of \$5,000.00 to cover all expenses that Dr. Barnard might incur in the way of traveling, stationery, clerk hire and his own salary. For the year April 1, 1929, to April 1, 1930, the budget is placed at \$7,000.00, which, after taking care of the salary of Miss Fischer, allows only a meager amount for traveling expense and for exhibits. The budget in both years had to be held to a minimum because of the comparatively small number of subscribers.

Every beekeeper who reads a bee magazine knows what the Institute is accomplishing. Almost every month there is a report telling a part of what Dr. Barnard and Miss Fischer are doing to bring honey to the attention of the public, especially the large potential consumers, such as bakers, candy manufacturers, syrup manufacturers, restaurateurs, and every possible place where honey may be used for direct consumption or manufacturing purposes.

With the wonderful assistance of the Kellogg Company, it has been possible for Dr. Barnard and Miss Fischer to exhibit honey at food shows, where it was brought to the attention of thousands of people. This work has been limited only by the funds at their disposal.

Ask any large handler of honey what he thinks the American Honey Institute is doing. If he is posted, you will get a favorable and enthusiastic reply.

One of the future projects of the Institute will, no doubt, be the planning and making of a super exhibit at the World's Fair in Chicago in 1933. Already extensive plans are being laid. Dr. W. P. Flint, of the University of Illinois, is chairman of the committee for the Entomological exhibit as well as a member of the committee on Agricultural exhibits for this great fair. He expects to see that beekeeping is given a prominent position in the space allotted to Entomology. The entire exposition is designed to show the progress of industries during the last century, and certainly no pursuit can show greater strides than bee culture.

To tell our story at the World's Fair before millions of people will require a big effort on the part of the Institute, and it will be necessary to have the cooperation of everyone in the industry.

Any industry that stands still goes backwards because other industries going forward outstrip it. If honey is to occupy the place on the table that it should, it will be necessary

for the Institute to be equipped with funds sufficient to enable it to keep pace with other food products.

In organizing the Institute, the bee supply manufacturers, honey bottlers and others had in mind that their own business would be helped if honey could be placed in greater demand. It was a selfish motive that prompted the organization of the Institute just as it is a selfish motive that prompts any one of us to try to make a better living for ourselves and for our families.

The bee supply manufacturer benefits from a better demand and higher price for honey, because the beekeeper is encouraged and feels more like expanding his business if he knows he has a ready market. The container manufacturer knows his business will increase because there will be more containers bought. The honey bottler and packer knows his business will be more profitable because of a better demand. His margin will increase as his volume increases and higher prices prevail. The beekeeper will get a direct benefit because he is the producer, and naturally if there is an increase in the demand and in the price it must first pass through his hands.

To make the American Honey Institute a truly representative and successful organization, it should be supported by every manufacturer, every honey bottler and packer, every manufacturer of containers, all the queen breeders and bee shippers, and every beekeepers' organization in the United States.

We are, however, a long way from this ideal condition. While the more important manufacturers are supporting the Institute, several of them have not yet given any money, although they, no doubt, will when they see the value of the work to their business. We are also fortunate in having several of the large honey bottlers, yet there are more who can well afford to carry their share of the load in the work being done. Manufacturers of containers for honey are also well represented, but there are still a few who will later probably add their contributions to this work.

Most of the queen breeders and bee shippers will, no doubt, join when they see that it is to their interest as shippers of bees and queens, just as it is to the advantage of the honey producer.

When it comes to the beekeepers' associations, the Institute so far has the help of several. It has the support of the Colorado Honey Producers' Association, the Mountain States Association and the Sioux Honey Association and the American Honey Producers' League. Several state associations also have recently joined.

There is no question but that Dr.

Barnard and his assistants can give honey the publicity and impetus required if they have the necessary funds at their command. If future prospects for beekeepers are to continue to grow brighter, it will be necessary for the beekeepers themselves to get behind the Institute and pay whatever additional money is necessary to carry on the work.

The Institute wishes that its work be in no way opposed to the work of the American Honey Producers' League or other associations. So far beekeepers asking to join the Institute by paying \$1.00 or \$2.00 have been referred to their own local association or to the American Honey Producers' League. However, there is no reason why a beekeeper should not contribute to the Institute individually as well as through his association, in proportion to his ability and desire.

The Institute has four classes of memberships:

Founder Membership—Founder members shall include any individual, firm or corporation contributing \$250.00 or more annually to the support of the Institute, the first subscription having been made prior to July 1, 1929.

Sustaining Membership—Sustaining members shall include any individual, firm or corporation making application acceptable to the Membership Committee and contributing to the institute more than \$50.00 a year.

Contributing Membership—Contributing members shall include any individual, firm or corporation making application acceptable to the Membership Committee and contributing to the Institute less than \$50.00 a year.

Life Membership—Any individual may become a life member of the Institute upon application acceptable to the Membership Committee and payment of \$500.00.

Anyone can join the Institute on the basis of the memberships just given. After a good start has been made and after the more progressive beekeepers have shown that they are willing to help, it will probably be easier to make some kind of suggestion for soliciting subscriptions.

Under present conditions, subscriptions will have to be made voluntarily. Every subscription so far has been of this sort. It is impossible to levy a tax or force anyone to support the Institute.

However, it is by the example we ourselves set, by the work that we do and by the cooperation that we give to Dr. Barnard, that we can encourage others to come in and help furnish the finances that the industry so much needs. Michigan beekeepers are setting the pace by their recent action as told in the editorial columns of this issue.

More About the Wisconsin Convention

By Harry Lathrop

THE short notices of the convention held in Milwaukee, December 5 and 6, conveyed very little information on a subject of such importance. Now, after the convention is over, the writer wishes to review the work accomplished, first outlining the present condition of Wisconsin beekeeping, its needs and the efforts and plans for those needs.

Wisconsin beekeepers are well up in modern methods. We have our county associations our state association and the Department of Apiculture at Madison, and the aid of good bee journals to instruct our beekeepers in the best methods. Wisconsin is one of the few states to have compulsory grading rules, and the quality of our honey is not excelled anywhere.

In disease control the State Department gives ample assistance, so that our apiaries are kept clean and capable of putting on the market a delicious and healthful product.

Our greatest need is for a stable and reliable market. So far as the selling end is concerned, we are about where butter makers were fifty years ago. If the members of the association agree on what they consider a fair and reasonable price, there is usually some small producer to force his product on the market at a cut price. Demoralization follows and the result is that honey brings all kinds of prices. A farmer will not sell poultry, eggs, meat or any kind of grain from the farm at a price a cent less than the market quoted. Why will he sacrifice his honey? He does it because there is no established market for honey as there is for the other products.

Years ago there was much discussion in our meetings as to how we could remedy this situation. An effort was made to have the state association sell honey for the members through correspondence, without other expense or organization. To accomplish this a Wisconsin honey exchange with a central warehouse and facilities for packing, grading and bottling was needed, a manager and helpers also, and capital.

I am sure such a plan could have been carried out. All that is necessary for such a central organization is that it be strong enough to set the price and take over all lots that do not find a market at an equal or better price. But we have made no progress in twenty years.

The encouraging thing in our recent convention was an account of the successful operation of the Intermountain States Honey Producers' Association by its general manager, A. W. B. Kjosness, of Boise, Idaho. In three years they have stabilized

their business and marketed successfully a great many carloads of western honey. The state of Minnesota has joined them, and Wisconsin, through her association, has voted to do the same. It is probable that the name "Intermountain" will be changed to one more of a national or international character.

Although I am certain we might have organized a Wisconsin exchange that could have stood on its own legs, it may be that we are to have something better. One thing, we will not have to go to so much expense, probably, as in a local organization, as the machinery is already in operation.

It was pointed out at the convention that in Wisconsin we would realize a better price for our honey than that secured by western states, as our freight rates to consuming centers are less. The arrangement to sell through the exchange will not hinder our supplying local demand at a better price when there is such a demand. Our home market will always be our first concern, but the exchange will stop all price cutting and provide a reliable outlet for those who, heretofore, did not know where or how to market their honey.

Speakers on the program gave encouraging talks. Mr. H. H. Root spoke of the increasing use of honey in candy making and in bakery goods, and Mrs. Cornforth, of the Kellogg Company, on the cooperation of her company in recommending the use of honey with cereals.

A warning was sounded regarding the efforts of the corn sugar interests to have the pure food law amended to allow corn sugar to be introduced in other foods without stating on the label. Such a change will be resisted by all who favor pure foods.

"Bee Veils and Other Things"

By W. P. Southworth

Betty Bee's article on "Bee Veils and Other Things," which appeared in the August issue of the American Bee Journal, was of more than passing interest to me, as I am not entirely satisfied with any veil after using nearly everything that has been offered, as well as some fearful and wonderful creations of my own design, and had recently resigned myself to the use of the cotton tulle veil with an elastic in each end.

Working with six hundred to one thousand hives of bees with helpers, some of whom are not experienced, the matter of protection from bee stings is an important factor, as nothing will send an uninitiated man running out of the apiary faster than having his neck a target for red-hot needles.

I have been waiting with interest for the appearance of Betty Bee's description of the perfect bee veil and other things, because it is difficult for a man to think and to create things for his own convenience, especially if his wife can do both tasks better.

As the description of the "perfect bee veil" has not appeared and may not be given to the public for some time, I am venturing to describe a bee jacket that I am using, and to tell how it originated.

Nebraska bees are not more annoying to work with, as a rule, than domesticated bees in Germany, or other parts of the world, but two brothers that were by no means novices in the ancient art of honey production decided that some four hundred stocks of hybrid bees located near the Missouri river were just about the "world's worst." These bees were exceptionally vicious and housed in antiquated fixtures that were difficult to manipulate.

Necessity is the mother of invention, and hence two minds set about developing a jacket that would keep those stinging insects from crawling under the veils at the neck, for the days were very hot, and to have the throat bandaged as though it were sore was almost as annoying as the stings.

The result of their deliberation was the securing of two workmen's jackets of light weight, which they sewed up in front, and to the upturned collars they stitched a band of stout cloth, in the upper edge of which were stitched two wire hoops, about one inch apart, of sufficient size to go freely over the head.

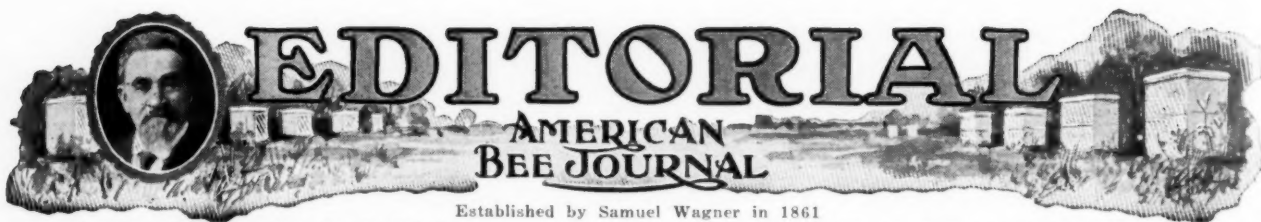
With these jackets tucked under the overall straps, and a cotton veil with a wire hoop in it, and the lower elastic between the wire hoops in the neckband, they were ready for a victorious battle, in comfort that they had not before enjoyed, for the free circulation of air about the throat is comfort that only the wearer can appreciate.

I have tried these jackets and improved on them slightly, and prefer them to anything that I have previously used. When I equip a helper with one of these jackets and veil, he does not discard it for anything that he has previously used.

A piece of cloth about eight inches wide stitched in the back of the veil we found to be an additional protection from stings, and a comfortable shade for the neck.

I do not think that this equipment will soon go to the discard as former contrivances of mine have done, but will remain a permanent part of my equipment until something better is developed.

Sioux City, Iowa.



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Lo, the Poor Editor!

Whenever an article on a controversial subject appears there is always someone to take personal offense. Several have threatened to discontinue the magazine because we have given place to articles on both sides of the question as to whether to burn or not to burn in treating American foulbrood. This publication has endeavored to give support to the inspectors in carrying out the provisions of the laws under which they operate. We have, however, thought best to give a hearing to both sides in every controversy even though we have not agreed with several of the articles printed. When a man signs his name to an article it should be sufficient evidence that the views stated are those of the writer and may not be in line with the views of the editor.

Our readers should remember that several states have no provision for inspection and several others have but small funds with which to work. In those states the beekeeper must look out for himself, and it is certainly the duty of a publication like ours to give him all possible information as to ways and means of handling the disease which he must fight alone.

A Machine Age

According to the best figures available, there has been a great decline in the farm population since the World War. It is estimated that the change in Pennsylvania, which is perhaps a typical example, is from a rural population composing 30 per cent to less than 10 per cent in the period from 1918 to 1928. Yet we learn that because of the increased use of machinery the total yield of farm products is nearly as great. If one man by means of better machinery can produce as much food as three men did a few years ago, one wonders what the final effect is to be on the rural districts. Homes must be farther apart, schools and churches with smaller support and the burden of community enterprise falling heavier on those who remain.

While beekeeping is a food-producing enterprise, a large portion of those who follow the business live in cities or towns and reach their apiaries by means of the automobile. While we know that the tendency is for constantly increasing production on the part of the individual, one wonders what the ultimate result of this specialization will be.

Keep Your Bees Quiet

Keep the bees from being disturbed, whether in the cellar or out-of-doors. In days that are warm enough for them to fly, it will be all right to let them have a chance. If there is snow on the ground, a few leaves or a little straw spread in front of the hives will save a lot of them from drowning in it. But do not under any circumstances disturb them in cold days.

Michigan Leads Again

At the recent convention of the Michigan Beekeepers' Association the question of support for the American Honey Institute received careful consideration. A committee composed of David Running, Oscar Schmidt and Floyd Markham was appointed to work out some practical plan. The suggestion of the committee was to the effect that beekeepers generally contribute an amount equal to one dollar per ton of their annual production for the support of the Institute.

As chairman of the committee, Mr. Running said it is not a question whether the beekeepers can afford it, but rather a sure condition that they cannot afford not to do it. He compared the present economic situation of the beekeeper to the condition which makes it necessary to feed the bees when they are short of stores, or for the dairyman to supply feed for his cows. The work of the Institute can only be continued with sufficient funds, and its value is already demonstrated.

Beekeepers present adopted the report without a dissenting vote and those present subscribed nearly \$400 on the spot. Secretary Kelty estimates that Michigan beekeepers will subscribe about a thousand dollars to the Institute.

All money is to be paid to the secretary of the state association and paid to the Institute to the credit of the state, with a list of the subscribers and amount paid.

This looks like an event of importance far beyond the amount represented in the amount subscribed, although that is very important. It establishes a basis on which all beekeepers can support the Institute on a common basis. The small beekeeper producing less than a ton can subscribe a dollar without inconvenience, and, as Running said, the big beekeeper has so much at stake in his marketing problem that he is bound to profit from the expenditure of a dollar per ton. For the first time it looks as though a really constructive plan of popularizing honey is under way with a sensible plan of raising sufficient funds to insure success.

If other states follow the lead of Michigan and subscribe with similar liberality, the problem of establishing contact with the public and creating a demand for our product will be solved.

Corn Sugar

We do not know whether a corn sugar bill will be passed at this session of Congress, but we believe in our people being ready to fight in the interest of the pure food law and of an honest sugar. Corn sugar, as we have said repeatedly, is not sweet, and we object to its being palmed upon the public behind honest sugar.

Lobbyists will work for corn sugar, for there would be money in selling it as cane sugar or beet sugar. They will probably try to make our farmers believe that it is to their interest to push it, in order to help the sale of corn. They might as well try to boost the sale of whisky because it used to be made of corn.

What we want is just fairness. We do not wish to prevent the making of corn sugar, but we want it sold under its name. Our beekeepers want an honest pure food law and are going to work to preserve it, even though they are not so apt at lobbying as the men who make a business of it in Washington. Write to your representative and to your senator and warn them against the damaging of the pure food law.

The Foulbrood Laws

From the correspondence we have received, it appears that we have been misunderstood by both the people who want all diseased stock destroyed by fire and those who think they should be permitted to treat their bees as they see fit. Yet, if the fault finders will read again our editorials of the past two months, they will see very plainly that we want to give both sides a hearing and that we are willing to see the majority rule. This is the only way to view a situation which has two sides and in which each side insists on having its own way.

A little investigation of the bee magazines will show that people are fighting on both sides of this question everywhere. For instance, the "Beekeepers' Item" for December contains a short argument on page 470, another on the opposite side on page 467, and still another on page 477, then again on page 485. We are giving, in this number, some arguments and resolutions passed. But we do object to anyone threatening to quit the American Bee Journal because we are willing to let the other side be heard.

Please be patient and let the majority rule. This is the country where ballots are worth more than bullets. And, indeed, are we not all aiming at the same results?

Winter Packing

We commend a careful reading of the article by Prof. H. F. Wilson on page 28. There has been much argument about winter protection, and it is apparent that there is still something to be learned. However, there are many practical beekeepers who will agree with Mr. Wilson on this matter. The matter of feeding water at the hive in spring is worthy of more attention than has so far been received.

Honey Prices

A good subscriber from Minnesota writes that he has had a lot of difficulty this year in selling his honey, and sends a clipping from one of the local papers. In this clipping, honey is offered at ridiculously low prices. For instance, comb honey, two sections for 25 cents, seventeen sections \$2.00, twenty-six sections \$3.00, and any larger amount 10 cents per section.

Our correspondent claims, and rightly, it is the beekeepers themselves who are at fault, at least to a great extent, in not having living prices for honey.

This brings up the idea as to whether or not a larger production of honey and a more general distribution of it would not sooner or later mean a more uniform price. We have numbers of beekeepers and honey sellers tell us that honey must become more of a staple and more generally recognized as a commonplace product in all stores, before a uniform price without price cutting will prevail.

As an instance, butter is cited, which is now a universal product for sale everywhere, and demands approximately the same price with scarcely any fluctuation. In other words, farmers post themselves on what the price of butter is and do not accept less than one or two cents under market prices when they are ready to sell. Many small honey producers, on the other hand, take no pains to post themselves, and as a consequence sell many cents under the market, oftentimes.

What to Do in January

Winter is, they say, the time of rest for both the bees and their keeper. But there is a lot of work for the beekeeper to do, if he cares for the success of his business. Aside from disposing of the honey, he must prepare his hives and fixtures for the coming season.

Hive painting belongs to the winter months. Some hives that have been left unpainted for several years may be now empty, and it is wonderful to see the improvement that we can make in them by giving them a couple of coats of paint. A dry, unpainted hive will soak a large quantity of paint; but it is just that much more likely to last in the weather than a hive of new lumber. If you direct your hired man to paint such a

hive, tell him what your wife is likely to tell the hired girl who sweeps the house: "Take care of the corners; the middles will take care of themselves." The joints of the hive body with the bottom board need more paint than any other part of the hive, for it is there that moisture rots the wood. Unless the bottom board is made of cypress, it needs painting more than any other part of the hive. Cypress bottom boards and a metal sheet on the cover make our hives last twice or three times as long as they will otherwise. A well-made hive, well painted, should last thirty to fifty years, in the apiary.

Old combs need attention also. Good worker-combs must be saved. If they come from old gums, they should be carefully cut away from drone-comb and inserted into frames, well wired. Some people look down upon this saving. But it is a saving nevertheless. Drone-combs, however, must be rendered into wax, for they will not do, even in the extracting supers. The queen will hunt for them in the supers if there are none below, and the bees appear to understand her desire for them, for they will often leave drone-combs empty of honey for the benefit of the queen.

New Process for Milk Sugar

Word comes from Washington that a new process for making milk sugar has been developed in the research laboratories of the Bureau of Dairy Industry. It is said to be sweeter and more soluble than the present commercial form. It is thought that the new process will result in a great increase of production of lactose from cow's milk over the present output of three or four million pounds.

Milk sugar is used especially in the feeding of infants and in the diet of those suffering from intestinal troubles.

Research work with honey has not kept pace with that of other sweets. The honey producer has been content with the assurance that honey is a natural sweet, a healthful sweet and the first sweet known to man. It is time to learn new facts and make them known.

Relation of Package to Demand for Honey

Doctor Steffen gives us something to think about in his article on page 22. There is room for a difference of opinion as to whether honey should be offered for retail sale only in small containers. However, there is no question but that the doctor is right in his contention that honey is a high quality product and should be sold only on that basis.

The producer who is not a retailer must have some convenient containers in which to get his product to the bottler, and it is for this purpose that barrels and sixty-pound cans are mostly used. There is very little honey sold at retail in packages larger than the ten-pound pail. Personally, the writer believes in the five-pound pail as a convenient retail package for the beekeeper who sells his crop to the consumer. Read the doctor's article and draw your own conclusions.

Langstroth

It is a simple little story that Mr. Greengras tells of his meeting with Langstroth, on page 23, but what a human interest touch it has! Can anything be more worth while than to impress one's personality on a child as Langstroth did in that instance? How often it happens, as with Langstroth, that a man is never fully appreciated until long after he is dead.

Package Bees. Order Them Early

The southern breeders who sell package bees by the thousands should be given an opportunity of finding out early how many packages will be required of them. It would be out of the question for them to be ready for the northern customer if they have no inkling, during the winter, of what is going to be needed. So be sure and order early, arranging about the date at which the bees should be shipped. If the breeder in the South gets informed well ahead of need, he will be more likely to give satisfaction to his customers. It is to his interest that the northern beekeeper should be given a fair idea of what he may expect. Then both sides will be pleased.

With the Bees in Manitoba

By F. J. B. Williams

I WISH to tell a little about Manitoba and some of the methods of beekeeping here, which may be helpful to our brother beekeepers to the south.

The southern boundary of Manitoba is the forty-ninth parallel. On the west is Saskatchewan and on the north the great Northwest Territories and Hudson's Bay. To the south lie Minnesota and North Dakota.

Its area of over 215,600 square miles is made up of lakes and rivers, with muskeg and mineral rocks to the north. The population, according to the statistics, is 647,000, most of which inhabit a narrow strip across the southern part of the Province, in which is included the four and only cities: Winnipeg, St. Boniface, Brandon, and Portage la Prairie.

Manitoba is mostly a great plain, which was once the bed of an ancient lake. Its sediment now forms a rich alluvial soil noted for its wonderful growing properties. This soil, coupled with the long, warm summer days and short, cool nights, enables any plant which grows here to mature in a comparatively short time.

As agriculture increased, the farmer began to look around for some plant with which to feed his stock. Such a plant was found in sweet clover. It grows quickly and two crops can usually be cut from it in one summer. It makes a fine feed either for winter or summer. It was also found to be very beneficial to the soil, as better grain crops

Our twenty-year-old author tells in an interesting way of conditions in the North and makes the suggestion nicely that it may be "interesting to our very friendly neighbors across the imaginary border line."

could be grown on land from which sweet clover had been harvested.

So, in the course of a few short years, sweet clover has sprung from a mere weed to become one of the foremost ensilage crops in the province. In July it is a common sight to see hundreds of acres in full bloom, giving out its wonderful aroma, which may be smelled for miles.

Along with the rapid advance of sweet clover, beekeeping has gone ahead with leaps and bounds, and now Manitoba is the greatest honey-producing province in the Dominion. The quality of Manitoba honey is also unexcelled.

As the honey crop in Manitoba depends largely on the number of colonies, either wintered over or packages from the South, we may say that the beekeeping year starts in the spring. The Italian bee predominates, although there are some German blacks, and of late years some are enthusiastic about the Carniolan bees, claiming that they are quiet to handle and better winterers. They store as much as the Italians

and finish the sections better. They also claim that they are harderier and work on days when the Italian bees do not venture out.

Cellar wintered bees are usually taken out from the latter part of March to the middle of April. If the hives are double-walled, or if some protection can be given to single-walled hives at this time, they may be removed on any warm day towards the end of March.

If they were well prepared the fall before and are quiet, there is no harm in leaving them in the cellar until later. If single-walled hives are taken out without protection, they will suffer much, as the weather often changes quickly.

From experience, I believe it would pay any beekeeper to invest in double-walled hives. A fair or weak colony, or a package, with plenty of honey, in a double-walled hive in the spring will put up on the average more honey than a strong colony in a single-walled hive.

Thousands of packages are imported each spring from the southern states, either for increase or to cover winter losses. Some men up here, with hundreds of colonies, kill them in the fall, extract all the honey and buy packages in the spring. Whether this is wise or not, I can't say. A good wintered over colony will, in most cases, store more than a package.

The first thing a beekeeper in this country has to do in the spring is to prepare for the honeyflow, the peak of which may come either in July or August, and in some years during the first two weeks in September. To build up the colony it is essential that they be well supplied with food, because they use more food than they can gather. Unless they are in double-walled, packed hives, they should be sheltered by a good windbreak, either natural or



Above, one of the five outyards managed during the summer of 1928 by the author. At right, the three hundred colonies as they looked at the cellar yard at the time they were being prepared for winter. Note the bee truck and the well sheltered cellar in the background.



artificial. The queen must be prolific, even if she is not young, and the combs should be of the best.

One of the first flowers to bloom on the Manitoba prairies is the crocus, which yields pollen. Other early pollen producers are the willow, poplar, elm and box elder. The willow is the most important, as it is well distributed and produces an abundance of pollen when it is most needed.

The dandelion comes next, producing some pollen, and in some years a surplus of nectar. Cultivated and wild fruits, such as the plum, choke-cherry, pin-cherry, cranberry, and raspberry, also produce nectar and pollen.

During the latter part of May or first half of June, in most years, there seems to be a dearth of nectar. This is the time when many Manitoba beekeepers make the mistake of not having enough honey in the hives to tide the bees over, so there is a great loss of brood, which cannot be made up later.

Most any hive at this time of year can be given a comb or two of honey. If they have plenty of stores, no harm is done, but if they are short, a little help at this critical period will make the difference between success and failure. It most surely pays to keep ten pounds of honey in the hive at all times.

Then all of a sudden comes our main source of honey, the clover flow, which starts about the first week in July, gradually reaching one or more peaks and then slowly tapering off. If it is not killed by an early frost, it may extend until the latter part of September. Other good sources of nectar are the sow-thistle, Canada thistle, and later the goldenrod and aster, which usually yield until late September.

As far as the surplus is concerned, the crop is usually over by the middle of September and it is a wise act to have all supers removed by the fifteenth of that month to allow the bees to store in the brood chamber what nectar is yet to come, so they will have plenty for fall bees and for winter.

Much of the surplus honey in the fall may have been used in rearing bees for winter, and colonies are apt to be short. If they are to be wintered outside, they should be packed early, during the first or second week of October. All hives should then be fed for winter about four or five combs of honey and at least one ten-pound pail of sugar syrup. They should have enough food to last them not only through winter, but until there is enough to supply their needs in the spring, about thirty-five pounds for a strong colony. Some combs of honey should be saved for feeding in the spring, also.

Colonies to be wintered in a cellar are carried in during the first half of November and remain for nearly five months, or over, according to the weather. Winters are not so severe as an outsider might think. According to old-timers, we do not have winter here any more. They say that the temperature should average 25 below zero for several weeks to be called winter.

During the last few years our winters have been comparatively mild, with only a cold day or two once in a while. A colony of bees near here has survived several winters, housed in a hollow tree, and seems to come out in the spring quite strong.

Hives to be wintered outside in Manitoba do not need to be packed heavily. For experiment, one double-walled hive was packed with two inches of planer shavings on the sides and bottom and six inches on top, and it wintered excellently. Two single-walled hives have wintered exceptionally well for five winters in a rough packing box covered with tar paper to keep out the rain and snow. They were packed with planer shavings, having four inches underneath, seven inches on the sides, and eight inches to ten inches on the top.

Before the hives are packed, two twigs, or similar material, are placed on the frames to enable the bees to pass readily from one comb to another at the top. On these is placed a bran sack or celo-felt, which is then covered with a few loose boards to keep in most of the heat and at the same time allow upward ventilation through the packing material. For packing material, planer shavings or dry wheat chaff may be used, the planer shavings being preferred.

I have found, from outdoor wintering, that much money is expended for packing cases. The packing and unpacking is a nuisance. The bees consume nearly twice as much food as bees wintered in a fairly good cellar, and they winter no better, if as good.

Most of the bees in Manitoba are wintered in the cellar, which may be either part of the basement under the house or may be a specially built cellar outside. If a cellar is made in part of the basement, for best results it should take in east or south walls, or both, but not the north or west walls. No amount of roots or vegetables should be placed in the same cellar with the bees, as they create considerable moisture, which makes for poor wintering and mouldy combs.

Bees that are to go inside are carried in during the first half of November, well supplied with food. The entrances should be left wide open in most cases. Nuclei and weak hives should have their entrances somewhat contracted. Some upward ventilation should be given either by

raising the cover very slightly or by replacing the cover with sacks, carpet, etc., and a few loose boards to retain the heat.

Hives should be placed four to six inches off the floor, on stands. The cellar should be absolutely dark and reasonably ventilated. No exact temperature can be given, as the construction of the cellar, the strength of colonies and the kind and number of colonies have a great deal to do with it. The proper temperature of any bee cellar is the point at which the thermometer stands when the bees are quietest.

If there is a furnace in another part of the cellar, so much the better, as better ventilation may be more easily maintained. If the tiers of hives are not placed too close together, the ventilation is better and they may also be removed more readily in the spring. There should be very few vibrations to disturb the bees, and visits should be limited and rodents excluded.

Some cellars in Manitoba are made outdoors. The cellars which prove to give the best results are made in the side of a hill in earth of sandy loam. The cellar itself should be strongly built. For good results, it should be covered with a layer of straw and then covered with a thick layer of earth. The location of such a cellar should be high and dry and well sheltered from the north and northwest winds. Some means of ventilation should be provided.

Before closing, I should say something of swarming in Manitoba. We have quite a bit of swarming, due to the honeyflow coming so suddenly, but swarming can be reduced to a minimum if the bees are given sufficient room and by raising up fully capped combs of brood into the supers. This induces young bees out of the brood nest and so makes conditions in the hives more comfortable.

A Thousand Pardons, Mr. Gilham

The article on "Honey Candies," on page 606 of the December number, was by D. C. Gilham, Schuylkill Haven, Pennsylvania. Mr. Gilham is a specialist in the making of honey candy. He is a beekeeper and the information which he gives is absolutely reliable. Several years ago Mr. Gilham made a study of honey candies and has been adding to his store of information ever since, building up quite a trade along this line.

We are certainly sorry that we omitted his name. It was entirely unintentional, and those of our readers who are interested in this subject, I am sure, will be glad to know the identity of the author.

Californians Voice Their Protests

WE have been criticized for publishing several short items from California, the first in the August number, page 416, "We Are Taken to Task on Disease"; page 465, September, "Using Foundation and Combs in Shaking Diseased Colonies"; page 491, "American Foulbrood, Fire or Carelessness"; page 546, "Success with Water Formalin"; page 555, "A Backhanded Slap"; page 563, "Let Every Man Defend Himself"; page 609, "Neglect Is the Only Excuse for Burning"—seven items altogether.

Those interested should read the items. The first one, "We Are Taken to Task on Disease," states that "our most influential journals do not publish protests against the burning of diseased colonies." There is an old saying it never pays to be angry, and perhaps our ire at this statement was the main reason for inserting the item. It brought letters, both for and against the program of eradication, so we followed with the others mentioned.

In the seven articles the controversy is between the inspection system and two beekeepers, with one outside intervention from the state of Wyoming.

Obviously a dispute of this kind should not have place in our pages. It is not the kind of material we are fond of publishing and it leads to heated argument which should be settled "out of court."

Their publication has led to protests from some of the most influential beekeeping groups in California and we feel that we should give voice to them here.

The California Bee Disease Legislation Has the Support of the Beekeepers

"We are enforcing a law agreed to by the beekeepers of California. Service to the industry is our only aim; improving the service our only endeavor. The California beekeepers have placed a stamp of approval on our program. This program is applied impartially. No public program can suit everybody. Any public deed represents the will of the majority, and the minority will always criticize. We appreciate constructive criticism, but it is difficult for us to appreciate destructive criticism. If this criticism arouses the majority, we are forced to crystallize their sentiments and give voice to them.

"I cannot find the opposition actually existing in our state which your columns have led the world to believe does exist. I do find that the prestige of the Journal is being injured. Destructive criticism gains

nothing but enemies. We do not by choice indulge in it. Shall not a national policy be formed that is practical and acceptable to legitimate beekeepers, bee journals and law enforcement officials? Or must we sit by and watch disease consume our industry while we fight over meaningless details?

"The American Bee Journal has always represented progress in beekeeping. Our aim is, likewise, progress, and we must face the facts to be successful. For that reason we trust you will understand the spirit in which we present these thoughts and that we may continue to have your cooperation."

Frank E. Todd,
In Charge of Apiary Inspection, Department of Agriculture.

The Facts Have Been Misrepresented

"You made mistake in publishing material criticising the work of the Apiary Inspection Service in our state. Facts have been misrepresented by those who have been attempting to break down the eradication program.

"When our county association endorsed the Journal and recommended that all members subscribe for it, we expected that you were anxious to make it of greater service to our beekeepers. Instead, we are punished, month after month, for supporting the program of eradication, with reflections upon our capable inspection service and the united industry of California. So, instead of trying to be of greater service to the readers on the Pacific Coast, I sincerely feel that you have unknowingly done us a great deal of harm.

"We had expected and were anxious that the American Bee Journal would do nothing that would interfere with a constructive program of eradication of brood disease in every part of the country, and trusted you would do everything you could to encourage such eradication and not publish matter that would oppose and criticize the only known method of eradication."

Thomas C. Burleson,
Colusa, California,
Burleson Honey Company.

Fraternal Honey Producers Protest

"At the meeting of the Fraternal Honey Producers at Riverside, California, it developed that the attitude your Journal was taking in publishing contributions from California was contrary to securing the desired impression among your readers that the great majority of the beekeepers of this state are heartily supporting the program of American foulbrood eradication. This association ex-

pressed the above sentiment by unanimously adopting resolutions, a copy of which is enclosed.

Resolution

Resolved, That we, the beekeepers of the Fraternal Honey Producers of California, do hereby signify our satisfaction with our present bee inspection service and express our gratitude to the California Department of Agriculture for the fine work being accomplished through Mr. Todd and his helpers.

Resolution

Whereas, There has appeared in the columns of the American Bee Journal articles written by various contributors, attacking the program of the California Department of Agriculture; and

Whereas, Such articles include misstatements of facts and personal opinions contrary to conclusions arrived at after scientific investigation; and

Whereas, We believe in the eradication of American foulbrood, therefore be it

Resolved, That we endorse and recommend a more careful censorship be placed on all articles published pertaining to disease eradication and sterilization of combs, that a careful and thorough investigation be made of all such claims to establish their reliability and authenticity before publication.

C. A. Wurth, Secretary.

It's Your Mistake, Mr. Editor

"I have been following with considerable interest and a fair knowledge of the circumstances the articles appearing in the Journal criticising the program and work of the Apiary Inspection Service in California and advocating treatment methods of controlling American foulbrood instead of the burning which is prescribed by our State Inspector, Mr. F. E. Todd.

"I can readily understand the attitude of an editor in permitting the use of his columns for the fair discussion and presentation of all debatable subjects of interest to his readers, and I want to assure you that I am not of the mind that the American Bee Journal is consciously making common cause with those who are attempting to break down the California eradication program.

"But, to one like myself who is in daily touch with the work of the Inspection Department in Los Angeles County and well informed on conditions throughout the state, it is quite apparent that you have gained an erroneous estimate of the real state of opinion of the dominant majority of California bee men regarding the value and legality of the work and methods of the department.

"You know it often happens that a noisy but exceedingly small minority of dissenters can easily hold the center of the stage until the satisfied majority awake to the necessity of presenting their side of the case. So, for your information, I am going to emphasize a few points:

"First of all, I want to emphasize that the California Apiary Inspection Act was enacted after request and

by the consent of the beekeepers of the state. The Legislature would not pass this until all factions had composed their differences. No piece of legislation was ever more openly discussed and considered.

"Secondly, the law is not oppressive or unduly destructive in its application, and—what is most important of all—its administration is in the hands of a man who is not afraid to go out and enforce it without fear or favor, and by summary methods when persuasion fails.

"The methods employed have been so uniformly successful that the American foulbrood rate has been cut in half for the last fiscal year. One hears satisfaction and approval by the bee men of the state, almost without a dissenting note. The ones who are objecting are, for the most part, those who have invited the force of the law. At that, their fortunes have suffered less than their feelings, and certainly less than they would have suffered from the scourge of disease that the inspectors are trying determinedly to eradicate by the only method that has ever been successful on a state-wide scale.

"I feel sure that your unexcelled access to information must leave you convinced of the unsoundness of treatment methods in the hands of keepers at large. You cannot be ignorant of the results of the research work of the Bureau of Apiculture and others on comb disinfection and kindred methods, also that the Bureau has ceased to recommend the shaking method of treating American foulbrood.

"I call your attention to these points in order to point out the damage done by responsible papers in giving prominence to the alleged successful use of such methods. We inspectors in the field, who are charged with the responsibility of getting results, find our work made more difficult by the continued publication of such matter, and we are continually called on to undo the damage worked in this way upon the impressionable and inexperienced bee men."

Henry Perkins,
Senior Inspector of Apiaries.

The Impression Is That Your Journal Is Opposed to Our Law

"It occurs to me that your paper is making a mistake in printing letters such as those which have appeared concerning the disease situation in this state. Being a beekeeper, I am naturally very much interested in our inspection laws. I had been buying honey during a recent trip when I met Mr. Todd. In all this trip I met only two beekeepers who are opposed to our present law. If you knew the conditions here as I do, I doubt if you would print the opinions of opposers.

"When the owner cannot keep his apiaries reasonably clean, it is necessary to take any means at hand to enforce a clean-up. It is a fact that in one apiary of 150 colonies, 145 colonies were diseased. The owner said he would do nothing about it. What else could be done but burn them when such a condition is discovered?

"So, in almost every case you will find the larger beekeepers of California are strong for the enforcement of the law. In our own county, Los Angeles, our inspector's last report shows only 2.20 per cent of colonies diseased, and I have yet to hear of the first beekeeper to oppose the law. I am writing this because I have spent some time in the worst infected territory in the state and I can give you the views of a disinterested party. I am afraid that your printing articles from opposers will give some readers the idea that your Journal is opposed to our law."

Roy Bunger
Newhall, California.

San Bernardino, Too

Resolution

"Whereas, We, members of the San Bernardino County Beekeepers' Club, in regular meeting have considered the publication of articles in bee journals which have recently appeared pertaining to the enforcement of the law in California; we believe such articles should receive a more careful censorship and the authors of these contributions se-

lected for the knowledge they may express by experience, therefore be it

"Resolved, That we support only such journals as pursue this policy, believing that our position is warranted by the fact that an unusually large majority of the beekeepers of this state are supporting the program for the cleanup of diseased bees."

Ivan V. Knarr, Secretary.

Well, that's about all. There were several other letters which we have not mentioned. We like best what Mr. Perkins says in his letter: "I can readily understand the attitude of an editor in permitting the use of his columns for the fair discussion and presentation of all debatable subjects of interest to his readers, and I want to assure you that I am not of the mind that the Journal is consciously making common cause with those who are attempting to break down the California eradication program." That is well expressed.

It is our intention to permit the use of our columns for the fair discussion and presentation of all subjects of interest to our readers. That is a reasonable right which we will at all times maintain.

We are certainly glad that the beekeepers of California are behind their inspection service so thoroughly that they freely express themselves, as they have to us, when opposition is presented, and perhaps this recognition of the situation will be of help to those who are pursuing the disease eradication work in the state.

Composition of Nectar

In a recent work on the composition of the nectar of various flowers, Frl. Ruth Beutler has shown that the percentage of sugar in nectar is much higher than is commonly supposed. She obtained the following results:

the low sugar content of the nectar may be the reason, aided by the absence of cane sugar (since reducing sugar is less sweet—to bees as well as mankind—than cane sugar).

Observations were also made on the influence of the weather on nec-

Number of Samples	Dry Substance	Reducing Sugar Before Hydrolysis	Saccharose	Total Sugar
12	36.6	16.5	15.97	32.47
4	42.6	23.7	24.73	48.4
9	8.2	9.4	----	10.1
15	70.0	2.5	72.2	75.2

Nectar thus contains little else than sugar (generally cane sugar) and water. The value for horse chestnut is surprising, for this is a supersaturated solution of sugar. Bees were observed to visit all these plants except *Fritillaria*; the suggestion has been made that, possibly,

tar. The sugar concentration rose on warm days, but there was more nectar, of a thinner consistency, in the flowers on wet days or when the air or soil were damp.—Reported from "Markische Bienenzeitung" for May.

A. D. B.



Mrs. Markham, a winning half of the combination. Also the Markham home and apiary.



FOLKSY, gracious hosts! Apprehend them in terms of bees, music and flowers, happily abiding in accumulated labor, love and tradition of three generations, which bid fair to resolve themselves into the fourth, for young Christopher Markham is growing up now!

In one of the prettiest spots of Michigan the Markhams are sheltered in a home that has lost nothing, but gained much, since Grandfather Markham fashioned it many years ago out of the virgin timber that then abounded thereabouts and beautiful patches of which remain to lend enchantment to the countryside.

One knows it is the home of the Markhams from a distance down the road, even though he may not have set eyes upon it before. Have we not all seen this homestead somewhere, with its acre-wide and well-kept front lawn verdant under grand, sheltering trees which half hide the big, white home?

Through these branches, and in their setting, outline and structure of the homestead are pleasantly projected. Shall we call it architecture? No, hardly that. When Grandfather Markham built, it was for present needs. The family grew and in the succeeding generations there were extensions and alterations, all done in orderly fashion and for comfort and utility. It seems that the home may have grown up with the hills and vales and trees, all a glorious whole.

"I remember well when this part of the house was built," remarked

Floyd Markham's sister, who was there from up state when the visitor had been made comfortable in the living room. "It was sixty-four years ago." This in a resplendent note of sadness which broke in on her accustomed train of happy and quaintly humorous thought.

There are no formalities with the Markhams; they are just folks. So, with the object of the visitor's intrusion explained, all stepped out through the kitchen door into the humming home-apiary, which slopes gently, with a south exposure, down to the far end of the yard, where stands the honey house sheltered underneath some more grand old trees. What enchanting sounds came to our ears, created by countless bees playing, winging their way afire, or slanting in pell-mell from the clover!

It was an enchanting symphony that none but the lover of bees can truly enjoy. There was thrown into the pulsating atmosphere those same harmonies that our beloved Francois Huber caught and so fondly set down for posterity in one of his letters written a hundred years ago to his dear Elisa. What marvelous disclosures were made by Huber, the blind naturalist; what sounds reached his ears! Then, too, there was a thought for Beethoven, deaf, whose grandest symphonies were never heard by him. Infinite Providence, which the great Huber so keenly discerned, surely has ordered well for us our enjoyment and our benefit.

In the midst of the concert, and as though performed for our delight, there rose a ringing, concordant swell, the most magnificent phenome-

non in all beedom—a swarm! And there was Lady Markham in the midst of the tumult, unveiled, sans gauntlets, calmly beaming, caught by the joyous sound. Presently the bees gave up their effort to cluster on the hedgerow bordering the apiary and were returning to the hive. They had lost their queen, whose wings previously had been clipped against just such a flight as the bees had resolved upon.

Our hostess began searching around in the grass. Suddenly she came upon a little cluster. With her forefinger she deftly dissembled the adhering mass, and behold! there was her majesty, the queen, all excited, beautiful, golden to the tip. Mrs. Markham gently imprisoned the sprightly matron in her palm and ran jubilantly to the honey house, gleefully announcing, "I found her, I found her." The queen was promptly caged against the necessity of replacement, or perhaps that she may grace a new colony. So it goes with queens.

It was a delightful summer afternoon in the Markham apiary. There was the scale hive at the lower end, Mark's barometer, and on the honey house door were tacked up its records of several years. The guest peered into the honey house and longed to pick up the tools and go to work. Meanwhile young Christopher had slipped away—he had a more important engagement. Mark had gone into another part of the place to talk things over with a neighboring beekeeper who came in to purchase supplies.

Back through the kitchen. You have somewhere seen this same low-ceilinged culinary department, with everything spick and span. On racks over the door were guns and rifles, and on shelves quaint pieces and useful things. It was here that the secret came out. Mark is a marksman, loves to hunt, and does whenever he gets a chance. But Christopher crowds him for honors as a rifle shot. The youngster, now going on seventeen, holds an American junior championship on the target range. As a matter of fact, whenever a trophy is hung up for anything a boy can do he steps to the fore and skilfully annexes it.

In the living room, the whole truth about the Markhams of Ypsilanti is gradually coming out. Why do lovers of bees also love music? The question was asked by Mrs. Markham when she learned that the visitor had dabbled with both. There's no ready answer, except that they do. Again we thought of the masters, the blind naturalist and the deaf musician. Mrs. Markham is an accomplished pianist and accompanist, Markham a violinist and erstwhile 'cellist, while Christopher follows band work, as his daddy did years ago when he was courting the country damsel who became his mother.

In the midst of the discussion of music our hostess quietly moved into an adjoining room and brought forth a 'cello. It may have been the prized instrument of an artist: skilfully fashioned, full toned and mellow. It was Markham's instrument, made years ago and showing signs of long use. Markham, with his own hands and with his own trusty axe, had felled from the timber the material with which it was made. He seasoned the wood and patterned the 'cello with a master hand, which is evidenced by the fact that long use has not found it with a split or crack of any sort. Later Mrs. Markham brought out two violins, one of which likewise had been made by our host. So thoroughly do the Markhams enjoy music that they have long included in their routine at least an hour of daily ensemble practice.

Our Lady Markham is an unusual woman—apiculturist in her own right, pianist of pleasing report, wife and mother—and she has a weakness for gladioli. She has an acre or more of the finest specimens for miles around, and in season finds a big demand for them in the neighboring market at Ann Arbor.

Christopher says he wants to follow in his father's footsteps as a beekeeper, and likely he will, for he loves and has worked in the apiaries ever since he was big enough to lean over a hive and tickle the bees with a straw. Of course, he has a girl friend right now, and that takes up much of his time, though he never

neglects his work as a helper in the apiary, at school, or in the band room. He's a worthy young lad to perpetuate the traditions of the family.

Not much has been said about Floyd Markham, husbandman, father, marksman and musician, but Mark doesn't have much to say himself. He does a whole lot of good, sound thinking, though.

Markham in the past has frequently seated himself before his typewriter to tell in the American Bee Journal what he found out about bees, their habits and behavior, and what might reasonably be expected of them when accorded the royal treatment they so justly deserve. But during his many explorations into the labyrinths of the hive little did he suspect that a visitor would intrude one of these fine summer after-

noons in Michigan and divulge what he had found out in a worthy beekeepers' home.

Music, bees and flowers! Home, happiness and companionship! What more could one desire? And in these, among them, to labor and to love, content to leave pelf and self indefinite!

Wrote Huber to Elisa a century ago, and its truth is ineffaceable: "After you have breathed as I have, in the atmosphere of the swarms, the idea of happiness of all those beings will surely take possession of you; you will be glad that it was granted to them. Penetrated as you are with recognition for all the gifts that are lavished upon us, you will thank the great Dispensator for having overlooked nothing which may make the least of His children happier."

Detroit, Michigan.

Doings in the Northwest

By N. N. Dodge

The Washington State Beekeepers' Association Convention

Regardless of a dense fog of several days' duration which blanketed western Washington, making automobile driving hazardous and causing a number of severe accidents, a fair representation of western Washington beekeepers, as well as a number from east of the mountains, convened in Mount Vernon for the annual convention of the Washington State Beekeepers' Association on December 3 and 4. The first day was devoted to the appointment of committees and a program of talks from leading Washington and British Columbia beekeepers, and featured a banquet in the evening. During the second day committee reports were heard and discussed, the program of talks was concluded, and the Association's business brought up to date.

Among the matters discussed by members of the Association, that of treating or burning colonies infected with American foulbrood received much attention. Resolutions were passed favoring the establishment of an apicultural field station on the Pacific Coast, the support of co-operative honey marketing associations, the standardization of size of honey containers, the strict enforcement of laws governing the sale of honeydew, and condemning the use of unsightly or unsanitary articles in connection with fairs or other honey displays. A committee was appointed to work out a scale of costs showing the expense connected with packing and selling honey. The committee reported that with a bulk price of 9 cents per pound for honey, the beekeeper must receive from the consumer an average price of 21 cents

per pound for his honey packed in glass and tin retail containers in order to "break even." A feature of the convention was a round-table discussion of bee inspection work led by Mr. A. W. Finlay, bee inspector of British Columbia, Canada. Faulconer of Snohomish County, O'Brien of Skagit County, Mommsen of Pierce County, Higgins of Yakima County, Campbell of Thurston County, and Dr. R. L. Webster, director of bee inspection work in Washington, entered the discussion. Much credit for efficient work was given to Wallace of Lewis County and Cox of Grays Harbor County. Other discussions of interest on the program were: "Beekeeping for Women: Can They Succeed?" by Miss Elizabeth Dickerson; "Long Distance Pollination of Fruit Blossoms," by C. F. Turnipseed; "The Advantage of the Top Entrance System in Wintering Colonies," by A. W. Finlay, of British Columbia, and "The Importance of the Small Beekeeper and the Local Meetings to the Honey Industry," by M. F. Mommsen.

The program was concluded with the election of officers, C. W. Higgins replacing Fred Mandery as president, Campbell following Kane as vice-president, and Dr. Webster being re-elected secretary-treasurer. M. F. Mommsen, E. Dickerson and F. J. Buck were selected as members of the Board of Directors.

According to Dr. R. L. Webster of the Washington State College at Pullman, who has charge of bee inspection work in the Evergreen State, there has been a favorable increase shown in the accomplishments of the Inspection Service dur-

(Continued on page 37)

A Glimpse of Florida Beekeeping

*Something About the Peculiar Conditions in the State
Where Many Northern Bee Men Spend
Their Winter Vacations*

By Frank C. Pellett



The cabbage palmetto is a large tree and well distributed over southern Florida. The saw palmetto (at right) is dwarf in its habit, but it yields large crops of good honey. The beekeepers are C. M. Biorseth and C. H. Smith.



IT is hard for a visitor from the North to understand Florida conditions from the contacts made during a brief visit. There is such a variety of honey sources in different sections of the state, everything is so different from what one knows in the North, and the change is so great from one season to another, that one is quite likely to carry away some mistaken impressions. Regions where, during the winter months, it appears that there can be nothing for the bees, may put forth abundant blossoms from which to harvest a honey crop at a later time. The writer lays no claim to any special knowledge of Florida. What is said is merely the result of information gleaned from short visits there, and since these have always been during the winter or spring months, they do not represent a personal knowledge of the entire year.

Strange Sights and Sounds

When the man from the North first finds himself in Florida he discovers a new world. Instead of frost and snow of winter, he finds balmy sunshine, birds singing, flowers blooming, and oranges ripening on the trees. Even the trees look different. The Spanish moss which festoons the branches of nearly every old tree gives a weird and ghostly effect, especially by moonlight.

Even the crows, which are as black as usual, sound different than the

crows which we know in the North. They are smaller as well, and their habits are, perhaps, somewhat different, due to different environment. One hears one after another of the birds with which he has long been familiar, but often looks in vain for them, finding instead the mockingbird, a new and strange songster to one who is unfamiliar with the South. The mockingbird mimics many different birds so perfectly that one can never be sure of the presence of any feathered songster unless he sees it as well as hears its notes.

Not only does one find a new world, but a topsy-turvy one. Everything appears turned completely around. Leaving home in February when the ground was covered with snow and ice and the thermometer hovered around the zero mark, it was hard to adjust one's self to ripe strawberries and the harvesting of such vegetables as celery and cabbage. Hundreds of auto loads of ripe strawberries were coming into the market at Plant City and there was spirited bidding among the buyers for the fruit as it was offered. Twenty carloads of strawberries left this one town for distant markets on the day of our arrival there. At Sanford dozens of men and women

moved over the celery fields, cutting, bunching and packing the celery for shipment north. Coming directly from frost and snow into such conditions rather upsets one's balance and leaves him a bit uncertain as to what to expect next.

The production of fruits and vegetables at a time when the northern farmer is a consumer rather than a producer, and when the demand for fresh delicacies is at its height, offers a special opportunity to the Florida grower. The newcomer, however, is often deceived as to the probable returns from such crops and overlooks items of cost, which are higher than those which he knows in the North. Strawberry growers stated that their costs of production averaged higher than our usual selling prices for the summer crop in Iowa and Illinois. They must get high prices in order to make a profit.

Those who are accustomed to the rich black soil of the Mississippi Valley region find it hard to become accustomed to the application of fertilizer in such quantity as to make the annual bill higher than would be required for the rent of fertile land at home. The distance to market absorbs a substantial portion of the

returns, for freight and commissions and handling charges are always heavy against the man who does business at long distance. Surely there is a lot for the stranger to learn in Florida.

The Honey Plants

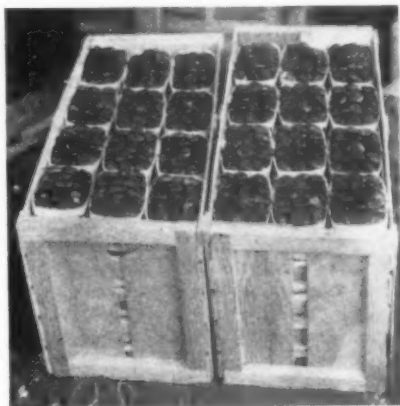
The man from the North is entirely at sea in judging the value of a locality for honey production. There are areas where it appears to the casual visitor that the bees would starve to death, where one finds every assurance from those who live there that they do in fact get good crops of honey. Apparently the worst drawback to the state is the tendency to burn the woodlands at frequent intervals. This can have but one effect—to impoverish the state permanently. Fire running over the soil, even though it burn but a light layer of leaves, destroys more humus than is necessary to produce a heavy crop of wheat. Fire running through the woods year after year has destroyed the humus content of the soils almost completely. This is very unfortunate because of the fact that Florida's soils are sandy and consequently very deficient in humus. There is a widespread educational campaign under way to stop the burning, but it makes slow progress.

Bordering the swamps in the northern part of Florida one finds large areas where the ti-ti is abundant, and the bees are busy on its white blossoms in early spring. The quality of ti-ti honey is rather poor, but coming at the season when the colonies are weak it is invaluable for brood rearing, and but little of it goes to market. Over much of the north part of Florida, and especially in the western part, the tupelo swamps are very extensive. Tupelo honey is of fine quality, does not granulate, and



R. E. Foster, Florida's efficient Bee Inspector

yields heavily. The production of tupelo honey requires a special story by itself, which will not be elaborated here.



Many carloads of ripe strawberries move north from Florida in February

In the pine woods over the entire state, gallberry grows in great pro-

fusion, and in neighborhoods where it is not injured by fires it yields good crops of fine quality honey.

In the central and southern portions of the state, the palmettoes are the principal sources of honey. The cabbage palmetto is a large tree and is well distributed over some large areas. The saw palmetto is dwarf in its habit, but the leaves are similar in appearance. Both yield a good quality of honey, but that from the cabbage palm requires more care in handling, as the honey is thin and somewhat inclined to ferment unless carefully ripened.

In the orange-growing sections much orange honey is harvested, although much less is heard about orange honey in Florida than in California. Along the seashore, on both the east and west coasts, the mangrove is found. When conditions are right, mangrove yields the heaviest flows of anything common to the South. The stories one hears about honey from mangrove rival those told about the big flows from sweet clover in the Northwest. It blooms in midsummer and yields a light-colored honey of good quality. Reports of three to four hundred pounds per colony from mangrove are not uncommon, although such crops are not to be depended upon every year. The sea-grape, manchineel and many others which are important to Florida bee men are unknown in other portions of America.

Until one has spent some time in Florida and visited widely different regions, he finds it hard to reconcile the different reports which he hears concerning beekeeping conditions. My impression is that one can keep bees successfully in almost any part of Florida, but that it would be necessary to adopt radically different methods in the various regions. In



A typical Florida apiary

some sections it is possible to keep several hundred colonies in one yard and harvest a profitable crop. Overstocking appears to concern the bee men very little. In other sections it is necessary to have small yards widely scattered and to do a great deal of traveling to keep enough bees to make a satisfactory return. In other neighborhoods it becomes necessary to practice migratory methods and move the bees from one source to another as the season advances. A man coming to Florida from the North must expect to learn much of his business all over again and he will be fortunate indeed if he makes money until he becomes familiar with his new environment.

A Big Crop

Mention has already been made in the American Bee Journal of the crop harvested in 1927-28 by C. C. Cook, of Labelle. The crop season extends over the fall, winter and spring, so covers part of two years for one season. From September 1, 1927, until June 1, 1928, Cook harvested 230,000 pounds of honey from 872 colonies, or an average of about 260 pounds per colony. The photo shows a part of this crop stored in barrels in the Cook honey house. He is located in the south central part of the state and has a variety of sources of honey which insure a crop from something nearly every year. Mr. Cook started beekeeping in 1916 with two one-pound packages, and has built his business rapidly until he now owns about a thousand colonies of bees. His average production per colony seldom falls below one hundred pounds.

W. K. Lott, of Orlando, stated that stationary apiaries in his vicinity seldom stored much surplus above food requirements for the year. With con-



C. C. Cook, of Labelle, who harvested a quarter of a million pound honey crop

tinuous warm weather, the consumption by the colony for brood rearing and normal colony activities is large. By moving the bees from one source to another, he is able to harvest yields. Ellis Pressler, of the same town, gives a similar report. He states that he often gets one hundred pounds of honey from orange blossoms and has harvested as high as two hundred and sixty pounds. The continued brood rearing and long season quickly exhaust the queens, and it is often desirable to requeen between the flows. He moves from orange to gallberry and saw palmetto, which overlap, and then to mangrove. Mangrove yields heavily about one year in two. Sunflowers yield good crops in the fall under favorable conditions.



Part of C. C. Cook's 230,000-pound honey crop stored in barrels in his honey house

At Englewood, on the west coast, I found the wild pennyroyal in bloom. It blooms from December until March and, at times, is the source of surplus. Its principal value, however, lies in keeping the bees supplied with something to do during the winter months. C. H. Smith reports that sea-grape sometimes lasts for several weeks.

When one finds decided uncertainty and difference of opinion among bee men who have worked there for many years, as to the relative values of different honey plants, it is not surprising if the chance visitor finds his head somewhat awl when he tries to describe the entire state, with its possibilities and opportunities.

Home Study Course in Beekeeping for North Dakota

Every beekeeper is interested in profits. That's why hundreds of people in the Central States interested in increased returns from their hives have enrolled in the practical home-study courses offered by the North Dakota Agricultural College, which is offered at no other expense than cost of postage and material used. The instruction is free.

Those who have completed the courses give the best description of the practical and educational value of this service. A beekeeper who had completed a course wrote in saying that on the strength of what he had learned from the correspondence course, he was going into beekeeping on a large scale; that he wouldn't take anything for what he had learned in this course, and that he wished that every beekeeper in the country would take advantage of this opportunity.

This year the North Dakota institution has added a number of practical farm courses to its home-study service. New subjects now available include typewriting, bookkeeping, business letter writing, and shorthand. In addition to these courses, the following subjects are offered: Poultry; Advanced Poultry; Turkey Raising; Beekeeping; Fruits, Vegetables and Trees; Forage Crops; Small Grains; Dairy Cattle; Dairy Products; Sheep Husbandry; Swine Husbandry; Beef Cattle; Feeds and Feeding; Farm Structures; Farm Management; and Home Economics.

The Department of Correspondence Courses, State College, Station, Fargo, North Dakota, will be glad to send you a circular with complete information about the home-study opportunity.

T. W. Thordarson.

The Bicentenary of John Hunter

The Discoverer of the Origin of Wax

By Frank C. Pellett

ON December 11, 1928, at the Peter Bent Brigham Hospital, was held the bicentenary celebration of John Hunter by the Harvard Medical Society. This great anatomist, who discovered the collateral circulation and originated the "Hunterian method" which revolutionized surgery, was also a student of the bees.

Hunter is described as self-educated, uncouth, aggressive and quarrelsome, but a man of great native ability. In his youth he is said to have displayed an insatiable curiosity about nature and to have observed ants, bees, wasps, birds and numerous other common creatures, in an effort to learn something of the details of their manner of living. In 1771 he published the "Natural History of the Human Teeth," which was followed seven years later by a work on the diseases of the teeth. He was apparently the first to discover that diseases of the teeth may lead to disease in other parts of the body, a fact that was disregarded for about a century. It is only in very recent years that physicians have come to look to the teeth for the origin of numerous serious disorders.

He is also remembered for his work on numerous other medical subjects, on the use of sugar and honey in the diet and important observations on the blood. One speaker at the bicentenary exercises spoke of him as "a botanist, a geologist, a zoologist, a comparative physiologist, an evolutionist and pathologist."

Our interest in John Hunter lies in his work in entomology, and more especially in his observations on bees. Another John Hunter at a much later date published a handbook on bees, which leads to some confusion because of the identity of the names.

Professor Wheeler, in speaking of Hunter's contribution to natural history, gave him a very high place. He stated that, "besides all his medical works he probably deserves place as the most important naturalist between Aristotle and Darwin." He credits Hunter with the discovery of the origin of wax, which is usually credited to Huber.

The discovery of the origin of wax, which was overlooked by both Reaumur and Swammerdam, is an important one, and Hunter's account of it follows:

"The materials of their dwelling, or comb, which is the wax, is the

next consideration, with the mode of forming, preparing, or disposing of it. In giving a totally new account of the wax, I shall first show it can hardly be what it has been supposed to be: First, I shall observe that the materials, as they are found composing the comb, are not to be found in the same state (as a composition) in any vegetable, where they have been supposed to be got. The substance brought in on their legs, which is farina of the flowers of plants, is, in common, I believe, imagined to be the materials of which the wax is made, for it is called by most the wax; but it is the farina, for it is always the same colour as the farina of the flower where they are gathering; and indeed we see them gathering it, and we also see them covered almost all over with it, like a dust; nevertheless, it has been supposed to be the wax, or that the wax was extracted from it. Reaumur is of this opinion. I made several experiments to see if there was such a quantity of oil in it as would account for the quantity of wax to be formed, and to learn if it was composed of oil. I held it near the candle; it burnt, but did not smell like wax, and had the same smell, when burning, as farina when it was burnt. I observed that this substance was of different colours on different bees, but always the same colour on both legs of the same bee; whereas new-made comb was all of one colour. I observed that it was gathered with more avidity for old hives, where the comb is complete, than for those hives where it is only begun, which we could hardly conceive if it was the materials of wax; also we may observe that at the very beginning of a hive, the bees seldom bring in any substance on their legs for two or three days, and after that the farina gatherers begin to increase; for now some cells are formed to hold it as a store, and some eggs are laid, which when hatched will require this substance as food, and which will be ready when the weather is wet. I have also observed that when the weather has either been so cold, or so wet, in June, as to hinder a young swarm from going abroad, they have yet in that time formed as much new comb as they did in the same time when the weather was such as allowed them to go abroad. I have seen them bring it in about the latter end of March, and have observed in glass hives the bees with the farina on their legs, and have seen them

disposing of it, as will be described hereafter.

"The wax is formed by the bees themselves; it may be called an external secretion of oil, and I have found that it is formed between each scale of the under side of the belly. When I first observed this substance, in my examination of the working bee, I was at a loss to say what it was. I asked myself if it was new scales forming, and whether they cast their old, as the lobster, etc., does? But it was to be found only between the scales, on the lower side of the belly."

Pikes Peak or Buß

I have been a steady subscriber to the American Bee Journal for over twenty-eight years and I think it is as good a bee journal as is published, yet it makes some of us sorry to see articles telling how to clean up foulbrood written by people who cannot or do not clean up their own bees. Now I like to see facts, but one should tell the exact condition or else not ask the editors to publish.

California is going to clean up in spite of anyone. I have bees of my own. They have been in an infected area for a long time. A year ago we started the first area cleanup in California for Contra Costa County. I was County Inspector, with Frank Todd directing our work, and I burned seven colonies of my own bees. This year I have found only one out of four hundred colonies diseased.

Let me repeat, California is going to clean up. I was inspector for Contra Costa County when we drove the whole county and am inspector of Shasta County this year, where we made a complete drive. I have only served one abatement notice in two years, and that party told me he found one more diseased hive after I was there. He bought cyanide, killed the bees and burned them. When I inspected in the fall, I found him clean as far as I could see. He now tells me that he is highly in favor of burning. Shasta County is one of the large centers for shipping bees and queens, some forty tons of package bees going from this county this year.

George W. Moore.

Uintah Basin Honey to Germany

Thirty carloads of Uintah Basin honey are being shipped to Germany this year. There has been a decided growth in beekeeping in this territory and it is certain that honey and beekeeping will be one of the principal topics at the Uintah Basin convention next year.

The abundance of honey plants is particularly favorable for bees in this part of Utah. G. P.

The Relation of Package to Price and Demand

By Dr. Mart R. Steffen

THE present tendency towards carload, not to mention trainload, marketing of honey would seem to be the underlying cause of poor demand and low prices.

Honey can rightfully be classed as a luxury among the natural products. Nature intended honey to be so classed, proof of which will be given in the following paragraphs.

One of the first qualifications which sets any article of commerce apart from others as a luxury is rarity; abundance or profusion automatically takes the article out of that class. Although, when obtainable in abundance, the quality of the article may be just as high, the fact that it is obtainable in abundance and with ease makes it less desirable and therefore of less value.

Now, while the foregoing precepts may be fundamentally psychological, they are nevertheless sound and in the end good logic; at least, they prove themselves to be such in commerce, no matter whether we deal in honey or in diamonds. The law of supply and demand does not apply here, even though such might appear to be the case on superficial examination of what has just been said; it does not apply because we are not dealing in necessities of life, primarily.

Honey is not a necessity any more than are diamonds. The per capita consumption of honey in this country is only three or four pounds a year, from which we rightfully and correctly deduce that a very large proportion of the population do not consume any. The law of supply and demand, furthermore, cannot be applied in researches attempting to identify factors responsible for the low price of honey, because there is no active natural demand for honey. The fact is that the situation is exactly the reverse of that pertaining to the necessities, such, for instance, as milk, eggs, potatoes, and the like, where a natural demand stimulates production.

In the case of honey, the stimulus to production has originated in the producers themselves, and, having carried production to the point of profusion, they find themselves in the dilemma of having to create a demand for what they have so abundantly produced.

Radium has been used with highly satisfactory results in some forms of cancer; in fact, its proper use is the only cure for some cancers. Radium has such great value that a thimble would hold, possibly, a million dollars' worth. But it does not have this great value in money on account of its merit as a cancer remedy, no

matter how highly we might regard it on this score. Its great monetary value exists chiefly in its rarity, only a very few thimblefuls being in existence in a useable form at the present time. Should it ever be obtainable in great abundance, its value will drop in the proportion to its abundance and ease of acquisition.

As beekeepers we believe that honey has great value as a food, particularly as a substitute for sugar. In this belief we lose sight of the fact that, comparatively, the price of sugar is low, that sugar, even though it is obtained from natural products, is really an artificial product that can be manufactured in quantities practically unlimited and that a demand exists for sugar which, while it may not be a natural one, has been fostered for many generations and is now universal.

Honey is a natural product of such exquisite perfection that it has successfully defied the ingenuity of man at imitation; man has not been able to approach the indefinable delicacy and delightful sweetness of honey in even the most delicious confections of his creation.

Honey not only deserves a better place in the commerce of the world than that of a substitute for sugar, but to class it and market it so is in itself the underlying cause of the difficulties encountered in the creation of a sizeable demand for honey.

The offering of an article such as honey, recognized from the beginning of time as the outstanding achievement of nature from the standpoint of palatability, in barrel containers, in double sixty-pound cans, or even in ten-pound cans, is evident proof of two things: first, that it is being marketed out of its class, and, second, that the offering of an article so exquisite in a manner so crude must inevitably have a derogatory psychological effect on those in whom it is desired to create a demand for it.

The per capita consumption of honey can most rapidly be brought to the point where it will tax production by sincerely enthusiastic preaching of the exceptional, unequalable, uncomparable goodness of the product. A per capita consumption of ten pounds yearly in this country would not be hard to reach if honey were offered entirely on its own merits instead of as a substitute for sugar or under some other subterfuge. It is doubtful whether even a very small producer could exist on the actually repeated purchases of honey to take the place of sugar, if the truth were known. Honey is not

a substitute for sugar, nor for anything else. Honey is honey; it is like nothing else, nor is there anything else like it.

Producers will admit that an annual per capita consumption of ten pounds would not be an unreasonable goal to reach for. Yet it would double the present rate of honey consumption in this country, and it is doubtful whether this demand could be easily supplied. And yet it is so low that it would mean that each person might consume less than a pound of honey each month, which in turn would mean that it could be eaten only occasionally or in very small amounts at a time. This is the way honey should be eaten; it was never intended for gross consumption daily over long periods of time, and it is very doubtful whether it is good to eat it that way.

There is no other way to create a natural demand for honey, if, indeed, it is necessary to create a demand; such a demand exists and always has existed for honey. The proverbial sweet-tooth inherent in all mankind supplies that natural demand for honey, and it is only because the producers of the finest and oldest sweet in all creation have offered mankind that sweet in barrels, in buckets, in sickening quantity, that men have turned to man-made sweets to satisfy that sweet-tooth.

Honey should **never** be put into the consumer's hands in containers holding more than a single pound, nor in other than transparent containers. And it should come direct from the producer in this quantity and dress; the intrinsic merit, the delicate finish, the exquisite flavor, the absolute all-round goodness of honey demands this. It is a natural luxury.

There is no means at our disposal which would more rapidly put honey on the plane it deserves, and for all time assure a steady and firm price for it, than the fact that it could be purchased only in one-pound containers; it would by itself, automatically, restore the lost belief in its rarity, and it would indeed become a rarity because of the difficulty of supplying the demand thus created by that queer kink in human nature which demands most what is hard to get. And this is a natural demand.

Until we take the steps required to market honey in this way, we are only prolonging our agony. The attempts at creating a demand for honey among bakers, housewives and confectioners is wasted effort in the end, because honey is not a sweet-

ener of the kind required in those fields, and few people will mess with honey when sugar is available for cooking or baking. True, honey imparts certain other qualities to baked goods that may be desirable, but most cooks and chefs do not have good luck with honey; its use requires new knowledge. Usually, after a few trials they give it up and, rightfully, condemn honey for all time for baking, cooking, or candy-making.

Let's quit trying to fool ourselves and others. Get down to facts and

sell honey for what it is and in the way it will eventually have to be sold if the honey industry is to survive. Get away from barrel ideas and hundred-twenty-pound case ideas—yes, even ten-pound pail ideas of marketing. Unless you do this you are not worthy of the business you are in. You are marketing Nature's finest delicacy—a veritable luxury—one that need not substitute for any other, and one that man can never imitate. Dress it up and sell it that way and your marketing troubles will be at an end.

A Memory of L. L. Langstroth

By C. S. Greengras

I NEVER take up the American Bee Journal and look at the picture of Langstroth without wondering whether any other one of its readers has as pleasant a memory of him as I have.

My father was killed in 1862 and the grief of his loss was so hard that my mother did everything she could to get my mind off our loss.

I had a little garden with a white picket fence and many kinds of plants and flowers. My first five dollars went into the purchase of a swarm of bees in box-hive, and I kept them in this paradise, with English honeysuckle and roses over the gate, hollyhocks around three sides and dahlias on the other side, and bee balm in all the spare places.

I took sick with a fever and it settled in my eyes, and the doctor said that I would go blind. My mother prepared me for this, by taking me into the fields and making me acquainted with the odor and shapes of all the flowers, so that when I should be entirely blind I could recognize them by the odor and the touch. Finally the dark day came and a dim shadow was all I could see. I was kept in a dark room most of the time. One day an aged Indian woman came along. My father, in the early thirties, had drawn their wagons through the Genesee River, near Rochester, New York, with his big team. The Indians never seem to forget a kindness, and every year they brought us a little present, a fancy basket or some little token of beadwork. The old Indian woman gave me a little dinner basket and told me how it was colored, so that I could enjoy it. She looked long at my eyes. "No, Little Blue Eyes, he not go blind, I give him light with my medicine," she said. A drowning man grasps at a straw. So mother asked her to try her medicine.

She went to the woods and gathered a large amount of stuff, then to

the brook and washed the weeds, and made a poultice and bound it over my eyes. I can never hear about Indians or squaws without a thrill, for her poultice took out all the inflammation and my sight was restored.

But learning to be blind had created such a love of the beautiful wild flowers in me that I wanted to study them all the time, so that not the smallest weed or flower escaped my notice. I would have loved to learn how to draw and paint them.

We had a big County Fair at our town three days each year, and a great display of cultivated plants and flowers.

It seemed to me the proper thing to gather a collection of wild flowers and exhibit them. So I roamed around the woods, the pastures and the marshes; I gathered all the flowers I could find, secured books on botany, and labeled them with both the common and the botanical names, thinking how people would enjoy them. I took them to the Fair, got a space in the Floral Hall and arranged them there nicely.

But many people only laughed: "Look at that mess of weeds that that poor boy has gathered together. He is plumb crazy. His mother taught him all that foolishness." My idol had fallen. I got behind some boxes and cried. I did not care so much for being called crazy, but I hated to hear my mother criticized. I went to the superintendent and asked for permission to remove my exhibit. He said, "By no means. Mr. Langstroth is going to speak on honey plants and wild flowers of the state. Wait and hear what he and James Vick, of Rochester, will have to say about your trash." I went back to the hall, and what a thrill I had! Mr. Root, Mr. Vick, Mr. Langstroth were admiring my weeds. Mr. Langstroth was saying: "What an amazing collection of flowers collected and classified by a little boy!

I want to see that boy." How can I describe the thrill that I felt when I stepped up and Mr. Langstroth and I looked at each other. Yes, we did more than look; we understood each other. And his talk on wild flowers that day has been an inspiration for me ever since. I wish every boy could have some friend like him instill in him an inspiration such as he did.

And I got my first premium and a purple ribbon. It is needless to say that my bees went into a Langstroth hive, and, although I could not make them work in the little glass boxes as some people did, I made some little hoops of white wood, fastened a piece of comb in them and attached them inside of some of the frames, and, oh, what beautiful hoops of honey I secured! I don't remember the queen laying any eggs in them, although I had no queen excluders. Mother got me to make some inch holes in the hives and put screens over them for hot weather, and when it was cold I covered them with tin.

As Christmas comes, each year, I think of the nice Christmas presents I made to some of my friends, of nice little boxes with pictures on the outside and nice hoops of white honey inside. We had some small cut-glass dishes and, by the use of an empty baking powder can, I could cut little round cakes of honey, like cookies, and ornament them with flowers; a rose or a pansy on the honey would give the whole dishful a dressed-up look. I cannot remember of anyone saying it was not beautiful. If you don't believe me, try it, and report in the Journal.

I see lots of so-called new recipes with honey; I think most of them have been used for generations, but they will always be new, for the Creator has ordained honey as the sweet for mankind.

Tell about your ice cream and angel food cake, but give me the honey jumbles my mother used to make.

And now, after all these years, I am still sending boxes of our beautiful rose-scented Dakota honey to my friends, with a sprig of holly. Although I miss my mother's approving smile, I see, across eight miles of prairie country, the tree under which she has been resting for thirty-four years and I feel that all is well.

And I admire everything that God made, and when I take up the Journal I look at the picture of that great man, Langstroth, who understood and helped the little boy, and I wish its readers in this and in foreign lands a happy and prosperous new year. South Dakota.

Missouri Has Fine Display



The above display of apiary products was shown at the annual fruit, vegetable and honey show which was held during Farmers' Week, October 19, 1928, at Columbia, Missouri. Students in the department of entomology and the class of beekeeping under the direction of Dr. L. Haseman arranged the exhibit. Some eight or more beekeepers in the state sent in their products. Prizes were offered for the best first, second and third entries in each of the sixteen classes listed. The prizes

were donated by the leading bee equipment manufacturers in the middle West. They were useful prizes ranging from hive tools to beehives, thus making competition keen, which was evident from the quality of honey displayed.

The exhibit, although small, attracted a great deal of attention from the bee and orchard men throughout the state. They seemed to realize more the importance of the honeybee as a producer of honey and as a very important aid in pollination.

Swarming of Stingless Bees

By Edward Kellner

IT was on August 25 that, while riding on our cocoa farm in the coastal plains of the Atlantic slope of Costa Rica, I passed a shade tree, when suddenly both eyes and ears were captured by a familiar sound and sight—the humming and circling of a swarm of bees. It was not at all a community of our honeybees, but of “congos,” as the natives call this variety of the numerous stingless bees of Central America. I am sorry that I am not able myself to determine its scientific name. It is a tiny insect, about half the size of a common fly, steel blue all over the body, and if anybody should think now “bees without a stinger”—gosh! that's woman without a tongue. Well, he may come down and find out for himself whether or not these stingless Amazonas won't make him run

faster than Nurmi. Eyelashes and brows, hair and beard, all of it is full of little gnawing, crawling, tearing little demons before one even thinks of turning about for an escape. There exists in Costa Rica a second variety of these congos of just the same size and appearance, except that the color is a yellowish brown, and a third, one-half steel blue and half brown. Both of them, the blue and brown, I saw inhabiting abandoned nests of wood-eating ants, the so-called termites on trees. As a peculiar, even very strange, fact it may be related that congos sometimes may be seen on human excrements, forming a kind of pollen out of it, at least treating it just the same way as pollen from flowers, kneading small particles of it and fixing them into their pollen baskets

until an entire load is formed. There is not the slightest doubt about it, for I was so surprised on seeing it that I felt obliged to make entirely sure that these pollen carriers were really stingless bees of the congo variety.

Let us come back to the swarm. It was not possible to make a guess about the number of the swarming individuals. A cube within which the whole swarm might have been enclosed would have had the approximate dimensions of 20x20x20 feet. The behavior of the swarm did not differ from that of our *Apis mellifica*. Strange enough, the humming was entirely different in a certain respect. It was composed of two tones instead of being but one, and stranger even, one of these tones was deeper than the swarming tone of our honeybee, whereas the second was higher.

Being on muleback about ten feet distant from the swarm, the bees troubled neither me nor the mule, and they did not change their quiet behavior when I, without any quick motions, rode just under and even into the swarm. The shade tree, a large and tall “Huavo” (Inga) was closely surrounded by full-grown cocoa trees, and on its trunk a parasitical plant with three folded leaves on relatively long stems, its creepers tightly pressed to the bark, went up to a considerable height. About twenty feet from the soil the main trunk divided into two limbs, and right there an abandoned ant nest of the size of a squash was fixed to the Inga. Before I arrived, the bees must have been determined already to make this their future hive, because when I first arrived there were already some twenty bees flying incessantly to and from the entrance of the nest, a small hole on the lower part of the nest and turned downwards.

At 9:30 a. m. some bees began to alight on the leaves and leaf stalks of the parasite right beneath the nest, but not a single bee alighting on the trunk of the tree. Quite remarkable and strange to the eye of the beekeeper is the manner the bees have of sitting, just like flies, one beside the other—no grasping, no clasping nor hooking of feet from one bee to the next.

No Cluster

Shouldn't clustering already be a sign of higher development?

At 5 to 10 o'clock the bees start alighting on the trunk, and ten minutes later on the nearest leaves of the next cocoa tree, a little later choosing the leaves as far as eight feet distant from the Inga. The alighting bees are increasing in number until at 10:15 a. m. almost half

the swarm is sitting on trunk, branches, leaves and stems near the ant nest. Not the slightest sign of building a cluster. Scattered all over the suitable objects within a radius of about six or nine feet, the fly-like insects seem to recover from their strenuous swarming feats. For nearly two hours I had to observe them till the greater part of the swarm was sitting, but apparently for no other purpose than to take a brief rest, for they did not yet enter the nest. Time and again, one of the tiny insects took wing and once more joined the humming comrades, and when at last I had to leave them the situation did not show any change.

At 2:45 p. m. I passed by. The entire swarm was in the air once more, restless circling and humming. On Monday, August 27, at 8:30 a. m. the swarm is circling around the ant nest; a few of the bees are sitting already in the entrance. They took possession of the nest. Wednesday, August 29, they are flying regularly to and from their hive, and from now on the situation remains unchanged.

The honey of this variety has a peculiar, not quite agreeable flavor. But knowing of the disgusting behavior of these bees as pollen gatherers, one feels deterred from tasting it. It is but a short time ago that I saw another variety of stingless bees, just the same appearance and steel blue color as congos, but double their size, in numbers, sitting on the cadaver of a recently killed armadillo and suckling eagerly the juices of the torn open parts. Pollen was not formed by them.

The Man and the Bees

Beginning with the first shoot of the dandelions, early in April, the man was out in his yard with a dandelion rake, raking off the yellow blossom ere it could go to seed. He has been at it every day since then, and it is now late September.

It was observed that he would reach out with his rake, and in many instances withdraw it without tearing off the flower, watching intently a few moments and then raking in the flower.

I decided to find out what it was all about and went over. There were several bees flying from flower to flower, and wherever there was a bee he waited until the bee had secured all the nectar desired and then he used the rake.

"Aren't you afraid they will sting you?"

"No, the only thing I'm afraid of is, I might injure one of them with this sharp rake. Just watch how fast they are working; they know I'll have all the blossoms off soon and they want to beat me to them."

It's my guess that had the bees decided to remain on the flower it would not have been raked, and that's what I call the disposition that brings a lot of pleasure to one in life: "The beauties of nature."

He also informed me that to dig part of a dandelion delayed its blooming, but when it did bloom there would be more flowers than if the plant's stem had not been bruised; that the prevention of the flower going to seed would, of course, reduce the number of plants; that the life of the plant was one to four years; therefore diligent raking of the dandelions will practically obliterate them from your home grounds, except for the seed that blows in from afar.

J. B. Dillon.

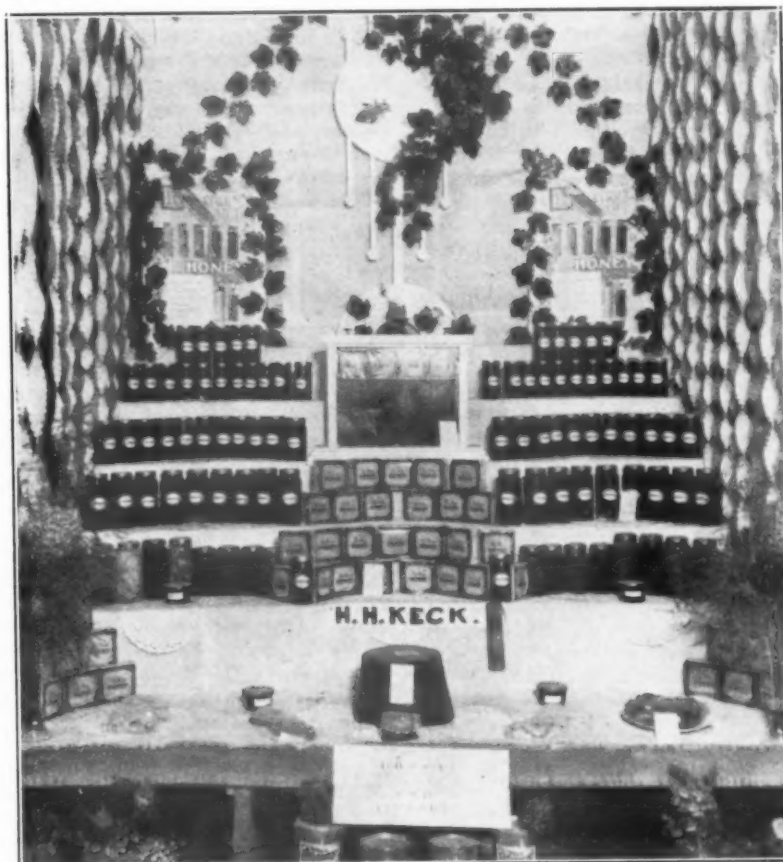
Strychnine in Eggs Fatal to Skunks

Frank Beach, president of the Idaho Association, classes skunks as predatory animals in spite of opinions to the contrary. Their visits to bee colonies do much damage, scratching the hives, causing the bees to come out to investigate, when they are promptly devoured.

Mr. Beach poisons them by inserting a bit of strychnine in a little hole in an egg. He deposits the egg close to one of the hives. When the skunk takes the egg as one of the common barnyard variety, the result is satisfactory. Good-bye, Mr. Skunk.

G. P.

An Unusual Display



The above picture shows an exhibit by H. H. Keck, Paul, Idaho. Mr. Keck has not told us what the value of such an exhibit is to him, but it must be considerable. He has gone to a lot of trouble. Everything is class in his exhibit — labels, jars, honey, well decorated booth. Either he or his wife has an eye for beauty. A certain share of this must belong to Mr. Keck, or he would still be living in single blessedness.

Attention is called to the wrapped

section honey, celophane wrappers, which have met with instant response on the part of grocers everywhere. This is the only way to put out comb honey to look right, in comparison with other products. Looking real close, in the original picture I can see three first prizes and two seconds in this exhibit. Probably pretty well paid the expenses of the thing. It always pays to do a thing right, but the majority of folks are too easily satisfied.



A Happy New Year to You!

By Betty Bee

TO most of us New Year's is a rather sad day. It takes us back to scenes that are past, beloved faces that are gone, unfulfilled hopes and broken resolutions, and as, we enter the new year, to most of us comes a secret question as to what the next twelve months may have in store.

I once knew a queer old lady who always on New Year's Day tried to anticipate all the unpleasant and disagreeable things that might come to her during that year, for then, she said, "they never come." What a strange philosophy that is, now isn't it? Was she an optimistic pessimist or a pessimistic optimist, I wonder? She it was, also, who each year hired her family physician, at his regular night-call price, to appear at her threshold at the stroke of twelve and enter her domicile just as the old year passed and the new one appeared. She said her first caller being a man and her physician, she was insured another twelve months of perfect health. Each December 31 this same woman lent an ancient shilling and three-pence long in her possession to one or another of her guaranteed-to-be-honest neighbors with the distinct understanding they should be returned to her the day following, a transaction insuring the return of all moneys due her throughout the year. I was always curious to know just how much money would have been lost to her had the neighbor failed in his task or the money been stolen or mislaid, but probably that calamity was duly anticipated by her in her list of disasters heretofore mentioned. Also, no cat was ever allowed to cross her threshold on New Year's Day; not that it would necessarily harm the cat, but simply because bad luck was sure to follow—bad luck, I presume, of some unusual, unimaginable variety. Hence her poor cat and the numerous kittens habitually in attendance were carefully jailed on December 31 in the corner to await their release January 2.

We smile at these queer notions, yet I wonder if deep down in our secret souls we ourselves do not treasure some just as foolish theories about luck and ill-luck. I am wondering, too, this January first, when we take mental note of ourselves, this silent inventory of our good points and shortcomings, the improvements we hope to make in character and soul growth, if it might not be well to look over our pet superstitions and see if after all they are not contrary to all the laws of common sense, if they are not hindrances to our mental and spiritual progress.

Now, honestly, how could these affect us unless we allow ourselves to be sufficiently gullible to believe in them? What real power could they have over us? I know a beekeeper—and he produces good honey crops, too—who always consults the almanac when extracting time comes, for he believes if "the moon is right" the honey "throws out easier." The moon has to be "right," too, when he nails up his hives, or they warp. I do not know whether in hiving a swarm he uses the proverbial mirror or dinner bell, but he probably does. I often think what a lot of trouble it must be to have to wait for the signs "to be right" to get a piece of work done. Then, too, what an uneasy feeling it must give a person when the signs persist in being "wrong"! If our own honey "throws out hard" it is a lot easier to feel that we did not use our brains with sufficient energy or did not apply enough good old-fashioned elbow grease to the apparatus in general, rather than to blame it on the moon or some other omen; and when my John's hives warp it always appeared to me he used too few nails, rather than too few almanacs.

To most of us these queer superstitions are nonsense, but many of the best of us have way back in our mental tract a wee pet notion of good and bad luck. We keep it nicely

hid, all cuddled up and probably cherished fondly, and the naughty thing sometimes plays all sorts of pranks with our common sense and reason. Supposing this New Year's Day we get this rascal out, dust him off and take a good, square look at him. Let's look him honestly in the face and see just what he is really worth—just how much he brings us good or bad luck, just how much he can spoil our happiness or courage or common sense; and let us determine to put away this silly thought influence, this prehistoric race fear, and face the world bravely and frankly. We shall all be better and stronger for doing it.

Looking back, it seems to me 1929 has been a most encouraging year for beekeeping. With the interest of the general public aroused through the Honey Institute, the Kellogg Products, the Honey and Jams, Inc., etc.; with cooking schools, domestic science teachers and writers becoming more convinced of the worth of honey; with the increased recognition given honey by physicians and health experts everywhere, 1929 marks a turning point toward greater demand and increased sales.

Moreover, through the journals, the entomology departments of Washington and the various states; the university agricultural departments with their classes, short courses and bulletins; through the state and local associations, beekeepers generally are beginning to realize and study carefully the problems before them more earnestly and to try to solve them in a more intelligent and scientific way. When the beekeeping fraternity learns that beekeeping requires accurate knowledge, skill, painstaking effort and such attention as must be given any profitable profession, then it will come into its rightful own, for only by careful and systematic study of honey production, disease control, marketing and advertising will beekeeping take its place as a national industry both of dignity and profit.

If every beekeeper today, whether he has one thousand or one colony, could realize that beekeeping is a life study, that he must be prepared to keep his bees in the best possible manner, using up-to-date and intelligent methods of handling, producing and marketing; that he must be "sold" on the use and value of honey for himself and his family, then beekeeping would prosper.

There are not too many bees nor too many beekeepers, but there are too many poorly kept and neglected bees and too many uninformed and careless beekeepers. The man who has bees and fails to give them proper attention is our gravest menace. Because his father kept bees out under the grape arbor without attention is no sign that it can be

done now. These don't-care, don't-know beekeepers are the ones with whom and for whom we must do missionary work if beekeeping is to progress. We must convince them that it pays to keep bees well. Many of them do not take a journal. They probably would not read it if they did, so they are in double need of conversion.

Right here is where the beekeeping fraternity can utilize their natural talents to mighty advantage. In fact I believe all-wise Providence gave them such talents, made them as they are, for just this. Here is a golden opportunity to put into good use all this flow of oratory with which you have been entertaining us beekeepers-in-law for all these years. If Mr. Let M. Alone is half a bee man, though he will not read or study his bees, HE WILL TALK about them. Who ever heard of a bee man who would not talk? You must cultivate his social instincts. Get him to talk bees, then you talk. **Talk hard.** Convince him that up-to-date methods mean better production, bigger crops, better profits. Talk him into careful beekeeping. You can do it. Why, my John for twenty years has expounded every known and imaginary theory of beekeeping to me, and I know positively that the amount of inspiring and convincing argument he has wasted on me would convert every unorthodox bee man within a radius of one hundred miles, if properly applied. Your wife can probably say the same of you. Turn your linguistic prowess and your silver-tongued eloquence to the conversion of these careless brethren; teach them the advantage of study and better management; convert them, and thereby do away with them as a neighborhood menace.

And while you are doing that, instead of our having to take our time admiring your flow of conversation and your remarkable arguments, which some of us beekeepers-in-law have about memorized by now, we womenfolk will have our own job to do for better beekeeping—the spreading of the gospel of more honey in our homes, more convincing proofs by way of honey cakes and puddings and salads to our guests and neighbors. We womenfolk must try to get the public out of the notion that all honey is good for is to serve occasionally with hot biscuit. Prove by your own cookery that honey foods are more delicious, more delicate in flavor, more wholesome, more altogether to be desired. Thus we can all help, and by so doing bring beekeeping into its own as a delightfully interesting and thoroughly profitable profession. Try these for instance:

Honey Almond Cakes. Melt one-fourth cup butter, add one cup of strained honey, one tablespoon lemon

juice, the grated rind of one lemon, two ounces sweet almonds blanched and chopped, one-fourth teaspoon mace, one-half teaspoon soda and two and one-half cups flour. Mix thoroughly, then set aside, covered, in a cool place, over night. Roll into sheet half an inch thick, cut into squares, place chopped almonds on each, and bake in moderate oven.

Fig Preserves. Soak one pound of figs over night, drain, stem, and run through food chopper. Bring to boil one-half pound honey, add figs, and let simmer until pasty. Place in jar to cool. Excellent served between thin slices of bread and butter, as a spread on the above almond cakes, or in sherbet glasses with whipped cream for dessert.

Sweet Pickled Prunes. Wash two pounds of prunes, let stand over night in cold water to cover. Cook in water until nearly tender. Drain off water, remove pits, add one-half cup honey and juice of one lemon. Bring to boil, let simmer five minutes and serve hot or cold as a "spread" for bread or butter or as an accompaniment for cold meat.

Winter Honey Catsup. Bring to boil one can tomatoes, three-fourths teaspoon salt, one-half onion grated, two tablespoons honey, one-fourth teaspoon ground cloves, one-half teaspoon paprika, one-half teaspoon of cinnamon, three sprigs of chopped parsley and one-half teaspoon celery salt. Let simmer down to about one pint, press through sieve, add juice of one lemon. Bring to boil, and serve. A tiny slice of a clove of garlic may be added with the onion if relished.

January Honey Salad. For each service, place a slice of canned pineapple on nicely arranged lettuce leaves. On the pineapple place two sections each of grapefruit and orange (free from all membrane), leaving an open space in center. Fill center with tiny sprigs of crisp endive. Over the endive place a little whipped cream, slightly honey sweetened, and sprinkle the whipped cream with nut meats.

German Yearbook

"Erlanger Jahrbuch fur Bienenkunde," compiled by Dr. Enoch Zander, is a paper-bound book of some two hundred pages covering some of the more important phases of scientific and practical work on beekeeping lines during the year in Germany.

The book contains thirty-six illustrations and eleven tables in connection with the numerous articles.

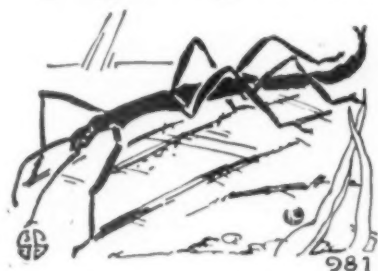
For those interested, the price is \$3.00 and it can be obtained through the publishing firm of Paul Parey, S. W. 11, Hedemannstrafe, Berlin, Germany.

"Beekeepers of the Future"

That title, in connection with Claire Reed's picture in the October number, and our little suggestion that maybe all our readers were either bachelors or old maids in the November issue, has evidently started something. Quite a number of pictures of really wonderful kiddies have been received from those who apparently think that the title "Beekeepers of the Future" was well chosen. At least they hope that it will apply to the next generation.

At this writing it seems the happy married people have about exhausted their ranks and really have left about 95 per cent of our readers still old maids and bachelors.

Long-legged Twigs That Walk



Wanderers in the summer woods, or even sitters in summer pergolas and arbors, are frequently startled at the sudden appearance of a long-legged live twig deliberately stalking up their arms or necks. Nervous people may be shocked, and even stouter individuals will not be able to resist a creepy sensation at the sight of this weird insect. Its entomological name, "phasmid," is an acknowledgment of its rather unearthly appearance, for it is derived from a Greek word that means apparition, or phantom.

But the walking stick need not cause any alarm, for it is quite as impotent for harm as any other phantom. The phasmids are relatives of the grasshoppers, little though they may look like their livelier cousins. The family is mainly tropical, but at least one species ventures north and is common throughout most of the northern states. Walking sticks are much more numerous than they appear to be, for even the most careful observers are easily deceived by their twig-like appearance. Only a few of the southern forms have even short wings.

These insects are like many other of the lower animals that are unable to defend themselves from attack, in that they can easily detach a limb if it is seized and hobble off on the four or five remaining ones. They can also grow legs to replace such losses, though the new members are usually smaller and weaker than the original legs.—Science Service.

A Warning to Beekeepers



After a heavy thunderstorm in the vicinity of Baltimore, Maryland, on June 19, Mr. William Clark, of 2113 Lake Avenue, decided to go out to Towson, Maryland, a nearby suburb, where he keeps his bees, to look over a colony which he had placed there under a tree. To his surprise, he found the bees flying around, and learned that lightning had struck the tree, gone over to the hive, pierced through the metal top, the comb honey super, the brood chamber, and the hive body, finding its way to the ground through the bottom board.

About two quarts of bees were killed and the wings of many injured. Fortunately the queen was not hurt. The picture shows something of the damage and the hole made by the bolt.

Too Much Packing Not Good

By H. F. Wilson

PROF. R. H. KELTY, of the Michigan State College, has recently written me a letter concerning some of his observations on winter packing for bees, and these observations correspond to our own to such an extent that I believe it is well to again bring the matter before our beekeepers, not so much from the winter standpoint as for the spring period. Experiments published in Bulletin 75 of the Wisconsin Agricultural Experiment Station in February, 1927, show definitely that too much packing is detrimental, rather than beneficial, during the spring brood rearing period. Our continued observations in Wisconsin show that bees suffer very little from cold when protected from the winds with a good shelter.

Professor Kelty made a statement in his letter which is so clear that I am taking the liberty of copying it word by word: "What called my attention to this condition, particularly, was an experience I had two winters ago with an apiary I purchased which was wintered out of doors with no packing at all, some colonies being three stories high, but full of honey, with no protection except a windbreak. We had pre-

pared the usual number of so-called Government packing cases in the college apiary, and much to my surprise the following spring the apiary which had no winter protection, other than a windbreak, averaged nearly twice as much brood per colony April 20 as did the colonies in the winter packing cases, where every provision was made to insure good wintering, as we had always supposed. The apiary which had only windbreak protection averaged twice as much honey crop, approximately, as did the colonies wintered over in packing cases. However, it must be admitted that the winter two years ago was quite mild and open. I think this has considerable to do with results. Our experiments agree with yours to the effect that while colonies with less protection consume more stores, they are far more populous in spring and will produce larger honey crops, other things being equal. I am mighty glad to have the suggestion regarding feeding water to bees in the spring. I am going to try this out on a rather large scale this coming spring.

"Our findings do not differ from yours in any particular. I did stress the point in my talk that it is pos-

sible to overpack bees, especially in mild winters, and that while such colonies consumed less honey they were also likely to produce a smaller honey crop. We are finding such universally favorable reports from commercial producers who are using the tar paper packing case and other forms of medium winter protection accompanied by windbreaks, that we are no longer urging beekeepers to build the so-called Government packing case. Under no consideration would we advise the use of the four $\frac{3}{8}$ -inch holes for an outside entrance. Mr. David Running used the four $\frac{3}{8}$ -inch hole entrance and lost about twenty colonies of bees from suffocation."

When one goes into the northern state of Michigan and finds the bees wintering perfectly with four inches of packing, one can hardly believe that real heavy packing is necessary. In every discussion of the wintering problem we should consider the winter period and the spring brood rearing period as two separate and distinct periods of operation.

A study of the weather records covering a period of twenty years at Madison, Wisconsin, shows that bees have less than 50 per cent opportunity to fly after the twentieth of November, and we therefore follow the practice of having our bees packed by November 19, and we are prepared to put the bees in the cellar at the first indication of bad weather following this period.

Under normal conditions, bees are better off if they are left in the cellar until after April 1. Regardless of whether they are placed in the cellar or packed out of doors, the winter period is ended by April 1 and this is considered the beginning of the spring brood rearing period. It is not economical to attempt to carry weak colonies through this period, and all colonies not able to cover frames in a ten-frame hive should be united with colonies of this size; they will do better without much packing when they have plenty of stores.

Colonies with heavy packing do not build up uniformly, and the unpacked colonies will rear more brood and produce a larger honey crop than an equal number of colonies in packing cases. The rapid changes of temperature and the warmth given to the hive by the sun tend to stimulate the bees in unpacked hives.

The three most important items for brood rearing in the spring are: An abundance of sugar or honey stores within the hive; an abundance of pollen, and water fed within the hive. If these three sources of food are abundant in the hive, brood rearing will go ahead more rapidly than if the bees were required to collect them outside the hive.

Beekeepers will find it worth while to save combs of pollen and to add one or more frames as the bees need them in the spring. Actual counts of bees and feeding and returning to the hive in the spring show that when water and pollen are abundant in the hive the number of bees leaving the hive entrance is reduced 50 per cent or better. Actual tests of feeding water to colonies of bees show that each colony will take down from three to six gallons of water between April 1 and June 1.

To those beekeepers who are of an experimental turn of mind, I suggest feeding water through a feeder on top of the hive in the same manner as you would feed sugar syrup through the spring period, and note the results. Also, count the number of bees leaving and returning to the hive during five- or ten-minute periods, and a surprising difference will be noted.

(This article corresponds with our experience and practice of leaving the front, or south side, of hives unprotected, so that they get the sun's rays during the winter and spring. Much depends on the location and shelter from winds.—Editor.)

Poisonous Dusts and Sprays— Their Effect on Bees

Prof. Dr. A. Borchert, of Berlin, has investigated a number of insecticides and determined the quantity of each that constituted a lethal dose for a bee. The substances tested include arsenic compounds (both calcium arsenate and arsenious acid), also solutions of sodium fluoride. The methods of testing are fully described. Unfortunately, commercial secrecy had to be respected with regard to the precise composition of the various compounds, but their content in arsenic, expressed as arsenic acid, is given.

The results showed that all the preparations were poisonous to bees. The lethal dose varied considerably, but there is some evidence that an insecticide is the more dangerous, the more arsenic acid it contains. On the average, the lethal dose per bee is 0.0012 mgm. of arsenic acid, a result agreeing with that of previous work by Hilgendorff and Borchert. The presence of copper, lead, etc., which were also present in the compounds, affected the result. Further experiments with a pure arsenical salt (formula $\text{Na-2 H As O-4 plus 7H-2 O}$) showed that the real lethal dose was about 0.003 mgm. of arsenic acid (As-2 O-5).

The experimental work with sodium fluoride is of considerable interest. Some preliminary work showed that bees would take even such weak sugar solutions as 1 per cent and 2 per cent; but, as these

were put in the place of the usual water supply, some of the visiting bees were doubtless water carriers. The weak syrups were, however, preferred to pure water, which was provided alongside as a control. (This, we may note, suggests that water bees behave differently from ordinary foragers towards very weak syrups, as might perhaps be expected. Von Frisch has shown ("Naturwissenschaften," 15, p. 322, 1927) that sucrose solutions under 4 per cent do not appear to be sweet to foragers.) Solutions of molasses, of the same strength, were a little less attractive to bees than sugar syrups, but the difference is unfortunately insufficient to make them safe vehicles for poisonous insecticides. The presence of sodium fluoride in the syrups did not repel the bees; if anything, rather the contrary. The lethal dose of this poison is 0.013 mgm. per bee.—Archiv fur Bienenkunde X.

A. D. B.

Honey Bread 4,000 Years Ago

A note in "Nature" (Vol. 123, p. 993, June 29, 1929) on some microorganisms found in an Egyptian tomb at Thebes, in beer and bread of that date (some four thousand years ago), mentions that chemical analysis of the bread showed that honey had been used in making it, also some fruit of the orange type to provide a bitter flavor.

A. D. B.

A Big Yield

The biggest average crop so far reported for the season of 1929 comes from North Dakota, where Mrs. A. Zimdars, of Davenport, reports an average yield of 300 pounds per colony. Big yields are common in the northern plains country, but an average of 300 pounds looks like a big crop even for that area.

Newspaper reports indicate an average of 133.2 pounds per colony for the entire state, according to a survey prepared by Prof. J. A. Munro. The Red River Valley section averaged about 175 pounds per colony.

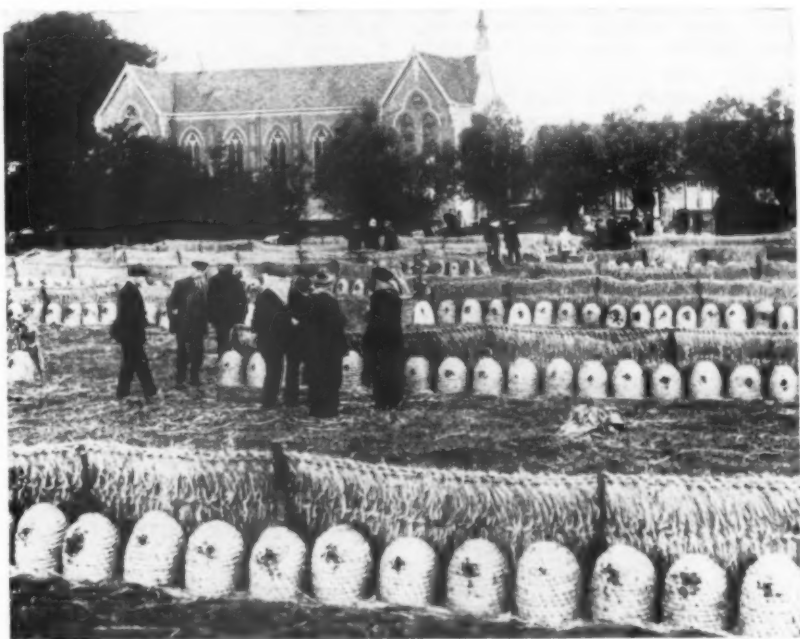
A New Bulletin

The American Bee Journal has recently issued a new bulletin of sixteen pages, entitled "The Modified Dadant Hive." It is written by G. H. Cale and is fully illustrated with photographs.

It is a very interesting story of the development of the large hive and the reasons why it is possible to produce more honey at less cost by means of it. The experience of a number of prominent men in the beekeeping field is given with statements of the results that they have obtained.

It is a very good summary of present day information on the hive question and will be read with interest by many beekeepers. Copies may be had free on request from the office of this Journal.

World's Greatest Bee Market



What is declared to be the world's greatest bee market is held every summer at Veenendal, Holland. Here are assembled hundreds of hives of the choicest bees, and samples of the wonderful honey are freely distributed.

Pushing a Good Thing Along

By Josephine Di Lullo

IT would not seem necessary to tell the world that honey is a good food and a vital addition to our daily bread, but in spite of the fact that it is the oldest sweet known to history, and the most widely produced, there are millions of homes in which it finds its way rarely, if at all.

Each American consumes more than half his weight each year in sugar, and the great sugar corporations are spending thousands and thousands of dollars to further increase the lead America holds over all other nations as sugar eaters, but there is no good thing which may be said of sugar which may not be even more forcefully said of honey.

The average housewife revolves in her own little orbit, doing her work as she has always done it, or, if she be a little more than commonly progressive, as the Home Demonstrator or her household magazines indicate. It was, therefore, delightful to have the opportunity to conduct a honey food demonstration in a city of some fifty thousand people, this past spring.

We set up our display in the most attractive location in a large retail grocery, patronized by all classes of people. This display consisted of honey in various sizes and shapes of containers, both tin and glass, and of foods prepared with honey. Prominently included was a liberal supply of honey gingerbread for free distribution, and preserves made with honey, served on small crackers.

The attention of the public was caught and held by a glass case holding a frame of bees, with workers, queen, brood, drones—everything complete—and also a most interesting comb which had been built by some bees who went gypsying and camped in a prune tree, making a cluster of beautiful comb nearly three feet in length and perhaps two feet in diameter.

We were provided with both light and dark honey, for it is the usual experience that people want what they are pretty sure they cannot get.

The conversations of the hundreds of people who stopped at the booth were entertaining in the extreme. An unbelievably large proportion of them had kept bees at some time or other; most of them had some at the present time, but the strange thing was that probably not more than two per cent of the people had ever seen a queen. A group of little newsboys drifted in the first day, and, after being shown Her Highness, came in at frequent intervals the whole week long to show off their familiarity with important beings by pointing her out to their less sophisticated companions, and it was really aston-

ishing how quickly they could find her, no matter how securely she might be hidden.

We had for distribution some leaflets with honey recipes, and were given much useful information in exchange.

Our recipe for a salad prepared by dipping slices of oranges in honey, rolling in shredded cocoanut and serving on lettuce leaves boosted the sales of both oranges and cocoanut, and one clever woman suggested a lettuce covering, the whole thing placed between two slices of whole wheat bread cut thinly and well buttered, as an attractive unit of a school luncheon.

One man assured us that any kind of ice cream was made much better by having a generous amount of thistle honey poured over it when served.

We were told several times that carrots or sweet potatoes were not properly cooked unless glazed with honey. We were assured that honey is the only thing which should be added to whipped cream.

One man told us a harrowing tale of the boil which would surely have taken his life but for the poultice made of honey thickened with flour, which drew the core out cleanly.

Honey and lemon juice were highly spoken of for sore throat. Our own cough remedy, of a half teaspoon of eucalyptus oil thoroughly stirred in a half glass of honey, was repeated many times.

Many persons told us that honey was rank poison to their systems, inducing the most violent cramps; but one man told us that a sprinkle of black pepper on the bread and honey or hot cakes and honey in no way detracts from the flavor and renders the honey absolutely painless.

The proprietor of a beauty parlor told us of the wonderful success she was having with the honey packs to improve the complexion, remove wrinkles and make two charms grow where none grew before, and we heard of myriads of persons whom bees cannot be made to sting, and we heard of more persons whom bees "will go a mile to sting."

We heard of every imaginable remedy for bee sting—mud, chewing tobacco, blueing, soda, salt, baking powder, lye, carbolic acid, honey, onion juice; and to my personal belief the latter is best.

One group were interestedly watching the queen, and when told that a good, prolific queen, under proper conditions, sometimes lays three thousand eggs in twenty-four hours, one woman appeared to be struggling with her other self for a mo-

ment, and then spoke, loudly, plainly, unequivocally: "That is a lie, and you should be ashamed to stand there and tell us such impossible things. If you would do a little figuring, you would know better."

That is one of the happenings which lend variety and novelty.

The week was well spent, and while perhaps not every person has the opportunity to spend a week before a changing audience singing the praises of honey, it is possible for us to keep it before our friends most impressively.

A pint jar of nicely labeled honey makes a nice little gift to drop when calling on a sick person, and means very little to the beekeeper. When called on for contributions for the church or club, or some public affair, honey may be skillfully worked into the offering, unostentatiously, of course, but none the less effectively.

Last winter a bazaar was being held and a huge pan of popcorn balls made with honey created a veritable rush, and ten times the amount (which, by the way, had been considered ridiculously extravagant) could have been sold, while other things of the sort went begging.

A honey gingerbread is exceedingly inexpensive to make, as compared to other cakes, and will sell before anything else at a food sale.

A glass of any sort of berries preserved in honey finds a warm welcome at food sales. Honey candies, especially those made by chopping dried raisins, prunes, dates, candied orange peel, any sort of nuts, made into a stiff paste with honey, shaped into small cakes and dried in a cool place, find an appreciative public, whether served to guests or made up in dainty packages as gifts or for sale.

Over-fat people usually have a nervous craving for food and thus take in an excessive number of calories and add to their "poundage." It has been found that a half-inch cube of granulated honey, either chocolate coated or plain, allays that craving as nothing else, except a lot of fat-producing food, will do, and supplies energy in place of the unwelcome fat.

In spreading honey propaganda there is only one thing to remember, and that is to confine one's self strictly to the truth, which is good enough for anybody, and one single misstatement will do more to bring discredit to the doubting mind than can easily be eradicated.

Don't tell any woman she can make angel food or any of the light, fluffy cakes better with honey than with sugar. Some of us tried it during the war.

Do not let anyone understand you to say that all honey is equally tasty. We get here a black, bitter honey

from willows or prunes which, while exactly what the bees want for brood rearing, will do incalculable damage to the trade if sold for table use.

Some dark honey is delicious and is greatly preferred by many people, but in selling honey it is safest and best to let the public know exactly what they are getting.

It may be possible for children to eat too much honey, but our experience has been to the contrary, for, when our two were small, a five-gallon can of candied honey stood on a bench in the pantry, with a strong ice shaver in it and a pile of paraffine papers in reach. The children and

their friends went to that can, scooped out a generous wad of it, placed it on the waxed paper to avoid muss, and ate prodigious quantities of it, and our local physician tells us we may advance any theories of child culture we please, we have unanswerable proof of the efficiency of our system.

It is no strain on honesty to say that honey is a valuable product, and it is to the individual interest of every honey producer to boost the use of it at all times. There is even now no overproduction, and the amount used each year might and should be multiplied many times.

care for), the composition of royal jelly from different colonies, though showing minor variations, especially in cells with young larvæ, is remarkably constant. This applies to the water as well as to the other substances present. This uniformity shows that we are dealing with the product of a gland, not with regurgitated food.

It is noteworthy that all samples of royal jelly, from cells of all ages, contained pollen grains, apparently always in approximately the same quantity. (The samples came from several colonies.)

The Chemical Composition of Royal Jelly

By Annie D. Betts

HERR ELSER, the well known chemist of the Liebefeld Institute at Berne, Switzerland, lecturing before the German Wanderversammlung at Graz last August, took as his subject the chemical composition of royal jelly.

He reminded his hearers of the valuable work done by Dr. v. Planta of Switzerland, but remarked that this investigator came to certain incorrect conclusions, due to the chemical methods of his day, which were not adapted to deal with very small quantities of material. In consequence, v. Planta thought that royal jelly varied greatly in composition, and therefore supported the theory of its origin from the stomach (regurgitated chyle) against the gland-secretion hypothesis. In recent years Langer has shown that the albumin of royal jelly is peculiar to it, so that it must be derived from a gland, thus supporting the results of anatomical research, which shows that regurgitation of food from the stomach is almost certainly impossible.

Elser determined the following quantities: Weight of the larva, amount of food in the cell, its content in water, fat, albumin, invert sugar, and cane sugar, its reaction (hydrogen ion concentration), and the presence or absence of pollen grains. He gives five sets of observations, the averages from which are shown in the following table:

The weight of the larva increases slowly at first, then continually quicker. From 2 mg. on the second day, it reaches some 300 mg. at the time of sealing of the cell, an increase of one hundred and fifty times. The weight of jelly, on the other hand, increases faster at first, more slowly later. The water content increases, and then falls again, but always makes up at least half the substance, at its maximum two-thirds. (In this connection Elser remarks that royal jelly when being analyzed must not be dried at the boiling point of water, but at a temperature not exceeding 160° F., else it becomes decomposed. Von Planta's high values for water content were due to his making this mistake.) Fat and albumin gradually decrease as the larva ages. Invert sugar first falls, then rises. Cane sugar is at no time present in royal jelly. The pH. (hydrogen ion concentration) runs parallel with the water content. Incidentally, royal jelly is one of the most acid body fluids known (low pH denotes acidity). Cow's milk is about 6.4; the contents of the bee's digestive tract ranged between 5.6 and 6.3 in Elser's experiments.

The author remarks further that, while the weight of the larvæ and the quantity of food they receive varies greatly with the strength and condition of the colony (for example, with the number of larvæ it has to

"Bees Raid Sugar Stocks; Result Is Hootch Honey"

This is the title of a newspaper clipping from the Chicago Daily News of November 12. It seems that bees belonging to H. E. Eichelberger, at Norfolk, Virginia, raided a sugar store of 60,000 tons, the property of various New York dealers, being held in storage hoping that the tariff increase might make them additional profit without having to pay extra duty.

Mr. Eichelberger says he noticed his favorite queenbee having a quarrel with a kingbee which seemed to be acting queerly. Evidently Mr. King told where he found the stuff that gave him the funny feeling.

Anyway, the bees swarmed into the sugar warehouse and kept carrying sugar back to their hives. In a few days they had made several hundred pounds of "rum honey, with a kick like a mule," according to Mr. Eichelberger. "I have orders for more than 100,000 pounds. I don't know whether the prohibition law can apply to my case or not. I am not making the honey; the bees are doing it, and evidently enjoy the kick they get out of it."

Prohibition leaders don't know how to stop the bees, and Bishop Cannon is far away in Brazil. In the meantime, Mr. Eichelberger is doing a big business.

Swiss Honey Prices

Switzerland's 1929 honey crop, which promised to be exceptionally abundant, was somewhat below expectation, owing to several cold weeks in July and August.

As a considerable quantity of last year's honey has not been disposed of, the market is heavy and clogged. Prices, fixed annually by the Apicultural Association, are slightly below those of last year. The retail price for Swiss honey is now 44 cents a pound, and the wholesale price 35 cents a pound. Wholesale quotations by non-members of the association have gone as low as 26 cents a pound.

	2nd day	3rd day	4th day	5th day	6th day	7th day
Weight of larva, mg. -----	2.0	4.3	23.1	91.3	148.7	295.5
Weight of jelly, mg. -----	20.0	142.3	282.2	307.0	298.8	384.2
Water, per cent -----	50.7	58.7	62.8	65.6	62.2	56.3
Dry substance, per cent -----	49.3	41.3	37.2	34.4	37.8	43.7
Fat, per cent -----	8.6	4.9	6.0	4.2	4.3	2.6
Albumin, per cent -----	18.9	10.4	10.1	9.4	9.0	10.6
Invert sugar, per cent -----	11.2	8.3	9.5	11.2	10.2	13.8
pH. -----	4.6	4.8	4.7	4.8	4.5	4.1

The Institute Needs More Than Praise

Your words of commendation in regard to the work of the American Honey Institute as expressed in the editorial on page 536 of the November number should receive hearty applause. The work the Institute is doing is without question the best that has ever been done in promoting the food value of honey.

The time is bound to come when the rank and file of beekeepers will rally to the support of this work. It has always been needed and it does not seem possible that those who are receiving the greatest benefit from it will fail to give the Institute all that it needs for the continuation and enlargement of its work.

There can be no doubt of the need for authoritative information on the food and health value of honey. Few doctors and nurses show any interest whatever in honey. Aside from a few physicians who have taken up beekeeping as a hobby, the writer does not recall a single one who is even remotely interested in honey as a substitute for sugar in the diet of his patients. This substitution is usually limited to the treatment of diabetes.

Doctors and nurses must be classed among the intelligent people, and it certainly seems strange that none of them do not recognize that if there had been anything wrong with honey as a reliable health food, that fact would have been found out several thousand years ago. Of course, this is negative testimony, but it is the kind of evidence that has brought about many improvements in our food and living conditions. For example, the improvement in the purity of water which we drink came from the discovery that there were disease germs in impure water. The same may be said about other sanitary and dietetic improvements. But no one has ever found diseases lurking in honey, and no one has even suspected that it was not good food.

Now what is needed is definite, authoritative information that is positive and convincing, to those who think scientifically, that honey is a health food. The present would seem to be the moment when such information should be produced, if the Institute is to do its best work. Such information could be used with smashing effect in connection with what the Institute is already doing so well.

If the present disorganized condition of the honey industry gives no hope of immediate support for such an investigation, and the Institute does not have the means to carry it on, why can't the Government be asked to take it up?

The excellent article in the November issue of the American Bee

Journal by Mr. C. E. Burnside shows what can be done in investigation. If something of this kind could be accomplished by the Government in the investigation of honey as a health food, it would at least set the ball rolling; and then, perhaps, the beekeepers will have been awakened to the importance of the work and come forward with ample means to complete it.

Robert B. McCain,
California.

(The Government has made a beginning in this important effort, having secured an appropriation which is to be used in cooperation with the Bureau of Chemistry in a study of the diastase content of honey and in such other ways as may become apparent as the work proceeds. It is to be hoped that later a similar appropriation can be secured for a study of the dietetic value of honey.—Ed.)

South Carolina Reader Reports Hard Year

This has been a hard year on bees in this section; very little spring honey, and feeding was necessary up until August.

The fall flow was quite good and the bees stored enough for winter. Some of the hives made two or three supers of honey. The flow was from aster, lasting from the first of October to the last of November.

The queen business has been very good.

A. P. Lake, S. C.

More About Marketing Boards

The Premier of Victoria has promised his state a marketing act similar to those of Queensland and New South Wales. The leading honey producers in the other two states are talking of marketing boards. So the whole of Australia may have them within a few years. It is characteristic of the opposition to these boards that it is voiced by produce merchants, commission agents, and people with similar interests. The latest is from the Sydney Chamber of Commerce, who "object to the producers being deprived of their right to market their produce in their own way." As a class, these men do not become vocal on any matter concerning the farmer. It is significant that they only speak on marketing, since in marketing they are, in effect, tollkeepers on the bridge over which all farm produce must pass until marketing boards are formed. As soon as marketing boards are formed, the farmers appoint their own tollkeeper, then the late tollkeeper "objects to the farmer being deprived of his rights." John H. Rosser, Australia.

Idaho Conditions

Bees in the south section of Idaho are going into the winter in good condition, according to Frank Beach, of Burley, president of the Idaho Beekeepers' Association. According to President Beach, practically all honey gathered in southern Idaho had been shipped before Thanksgiving.

British Columbia Group



Beekeepers attending bee demonstration at the Dominion Government of Canada Experimental Farm, Summerland, British Columbia, May 29, 1929, conducted by W. J. Sheppard, Provincial Apiarist (fourth in back

row); J. F. Roberts, Apiary Inspector (third from end in back row), and J. E. Britton, in charge of the experimental apiary at the farm. As Mr. Britton took the photograph, he does not appear in the group.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

FEEDING BEES IN WINTER

I want to know if you have ever had any experience in feeding bees in mid-winter. Is it liable to start brood rearing? I have several colonies that are very short in stores and I am afraid that they will not make it till spring, unless I feed them some. I have them packed in good shape, and I admit that I ought to have fed them before packing, but cold weather set in right at the beginning and I thought I had better get them protected from the cold as quick as possible. I was thinking I might take the packing from the top some warm day when the bees were flying, and put on some feed in pails over the inner cover air space and place the packing back over it, but if you think it is likely to start brood rearing I am at a loss to know what to do.

NORTH CAROLINA.

Answer—We do not believe in feeding bees in the dead of winter with anything but sugar candy, laid on top of the frames, right over the cluster of bees. You will find our method of doing it on page 611 of the December number.

However, in North Carolina it may not be quite so objectionable to feed bees with sugar syrup. But I believe that you should try the candy for the cold winter months at least.

If you feed sugar candy, just place it right under the packing, at the top of the frames.

DAMAGE TO COMBS IN TWO-STORY HIVES

I winter my bees in ten-frame hives with two bodies placed one above the other, with plenty of good honey. This last fall season, after the honeyflow was past and active brood rearing had ceased, a number of my colonies tore the brood combs in the lower hive body to pieces. In many of the frames only a small portion was left and the debris was thick on the bottom board. These combs were in good condition and the colonies were prosperous and healthy. Can you give me an explanation why this was done?

OREGON.

Answer—I do not believe that the bees tore the combs to pieces. This must have been done by mice, or perhaps by some other intruder. It must be that the number of bees in the hive was not sufficient to cover all the combs; that is one of the troubles in trying to winter bees in two stories. We use larger brood chambers and do not need to have two stories for winter.

I advise you to investigate this matter further, for there is a possibility of the intruders, whether mice or others, destroying more of the combs. Are your hive entrances large enough to allow mice to come into the hives? I have never seen bees destroy their combs and have never heard of such a thing. Be sure and look up this matter.

USING QUEEN FROM DISEASED COLONY

Christmas morning was a very cold one with us, but along toward mid-day the air warmed up and my bees began to take a flight, so I thought I would look them over to see how their store was holding out. I found (to my great surprise) one colony that contained foulbrood: I could smell it when the cover was removed. This colony had dwindled to a small handful. Now what I want to know is this:

1. I usually have one or two colonies that come out in the spring queenless. Would it be safe to give this queen to one

that has lost its queen during the winter? (She is a good one.)

2. When bees are working on buckwheat, do they gather at the same time nectar and pollen? I have watched them at different times and I have never been able to see one leave the field until she was loaded with pollen. If they do not gather both at the same time, then buckwheat yields no nectar in Virginia.

VIRGINIA.

Answer—1. It might be safe to insert a queen from a foulbrood colony into a queenless hive, but I would prefer not to try it, for it would take only a germ or two from the foulbroody hive in the stomach of the queen to give the disease to the healthy one and thus perpetuate the malady.

2. Bees usually gather both pollen and nectar from buckwheat bloom. Usually you can smell the honey from buckwheat in the combs, when they are harvesting it.

POOR STORES

During the early part of September, my five colonies, located in the city, gathered about a super each of a very black honey. This honey has a rather burnt flavor and in glass jars looks jet black.

This is my first year with bees and I was unable to determine the source of this honey, although I believe it to be some kind of honeydew. Can you tell me?

A few days ago, while inspecting my hives, which are being wintered outdoors on these honeydew stores, I noticed several with a great many dead bees at the entrances, in one case completely blocking it. This high death rate so early in the winter is evidently due to poor stores, as other colonies wintering on sugar have only a very few dead bees.

In order to keep from wintering bees on this honeydew, would it be practical to remove supers containing it in the fall, and winter colonies in one story with about ten or fifteen pounds of sugar syrup, using the honeydew for early spring brood rearing?

Would this honey keep until spring in the combs for feeding, or should it be extracted and fed with feeder?

WASHINGTON.

Answer—If the black honey which you mention is not honeydew, it is some burnt sugar syrup or molasses, which is just as bad for the bees to winter on. I am afraid that the colonies containing it will have difficulty in getting through the winter in good shape.

Sugar syrup made properly, with one pound of water for every two pounds of sugar, would certainly be better, and if you have mild weather during the winter you might give those colonies a few pounds of it, which they would probably use first.

As to the use of this bad food, it will be all right for spring, when the bees can fly out every day, although it is not very good at any time. But it is not really dangerous then as it is in winter. It is not necessary to extract it, as it may be fed in the combs at the proper time.

CELLAR CONDITIONS

We put our bees in a specially constructed bee cellar during the last week in October. When we examined them the other day the bees seemed fine as yet, but the entire cellar floor was covered with mold. I did not notice any in the hives, but am afraid it may spread there before spring and harm the bees.

Can you advise what to do to prevent this? The cellar is 16x18 feet, covered with poles and flax straw, over which we

have laid tar paper to make it rain proof. On each end we have a three-inch pipe which reaches nearly to the floor and extends about two feet above the highest part of the roof.

The hives stand singly on bridges about eighteen inches above the floor.

Last year we had the same cellar, but no tar paper over the straw. During a heavy spring rain it became filled with water, and when we got there the bees were drowned. To prevent this to happen again, we covered the straw with tar paper. Now the mold. Kindly answer soon as possible and greatly oblige.

MINNESOTA.

Answer—What you need is for one of those pipes to extend from the upper part of the cellar to the outside. Your two pipes reaching the floor do not give air to the cellar, but just secure a small amount next to the floor. If one of them starts from the top of the cellar, it will draw out the moist air.

Try this. You will probably have enough ventilation; but if it is not enough, just leave those pipes as they are and put in another conduit in the top.

POINTS ON WINTERING

I would like your advice on wintering. Have my bees moved before Thanksgiving; am wintering as usual. The bee shed faces south; made of shiplap, with roofing on top, back side and ends. They are packed with Sudan hay; hives slanting so moisture will run out.

Now of course they are well packed, three high, but here is my problem: They are in a sunny place and I notice quite a number come out and fall in the snow.

I wonder if I ought to have burlap over the south side, and open when it is warm. I always have wintered without anything over the south side to keep the sun off the hives. I have thirty-seven stands; moved them by truck, driving carefully and packing well, and after unloading I overlooked one hive; I forgot to take the lath from the entrance. Do you think I harmed them?

They were closed for a week. They are alive, but quite a number of dead bees at entrance. I cleaned them out and it was winter weather while they were kept in the hive. They were a strong colony with plenty of feed.

IOWA.

Answer—I believe that your bees have a good location and ought to winter well. Don't disturb them; don't put anything in front of the hives, but leave them fly when they feel like flying. If a few are lost in the snow, it will not matter; but if you disturbed them in snow time they would probably go out more, and more would be lost.

As to the colony which was shut for a week: If the weather was cold during that time it will probably not hurt it. Some bees are bound to die when colonies are transported in cold weather, because some of them stray from the cluster and get chilled.

HONEY IN RADIATOR

Can one use honey as a non-freezing solution in radiator of a car? If so, could you give me a formula for the same, for 20° F. and 40° F. below zero?

WISCONSIN.

Answer—Honey has been condemned by many people for automobile non-freezing solution, because honey water so very keenly leaks through the smallest crack. But when the joints of the radiator are good, honey makes a very good radiator solution.

We have never had occasion to use honey at such low temperatures as —30° or —40°, but we would unhesitatingly recommend a solution of half honey and half water, with the addition of about 10 per cent of alcohol. I do not believe that this solution would freeze at any low temperature of the U. S. It would only thicken to some extent.

LOSS OF NECTAR WEIGHT TO HONEY AND WAX

1. On page 71 of Langstroth's "Hive and Honeybee" he says that twenty pounds of honey are required to produce one pound of wax. Are those figures still thought to be correct?

2. I should also like to know how much nectar is reduced in weight to make ripened honey. On two different days last season my colony on scales showed a gain of twenty-one pounds in the evening, but lost three pounds through the night. (Weighed before flying started in morning.)

3. Is it possible for honeybee queens to mate with wasps or solitary bees?

4. Have you a book on the bumblebee?

Answer—1. On page 71 of his original book, Langstroth wrote: "Careful experiments prove that from thirteen to twenty pounds of honey are required to make a single pound of wax." Since that time it was recognized that a less amount is needed when conditions are favorable. So in our latest revision, paragraphs 222-223, we changed the amounts to seven to fifteen pounds. This is fully as low as we dare go. The cost of honey to make comb is very similar to the cost of hay and grain to make milk or produce fat. It depends

2. The reduction in weight of the nectar upon circumstances.

to change it into honey is not a specified amount. It depends upon the greater or less quantity of water in the nectar at the time when it is harvested. It is said that some nectar contains as much as 80 per cent of water, while some nectar, at the time of harvesting it, may contain only a very small quantity of water. Heather is of that kind. If you had continued to weigh your hives on the following days, keeping them from gathering any more, you would have found a still greater evaporation on the following days.

3. I am quite sure that there can be no mating between queens of honeybees and wasps.

4. Some books have been published on bumblebees, but I do not happen to know, just now, where one may be obtained. Such a work was once published by W. L. Sladen, who was Dominion Apiarist in Canada, some fifteen years ago.

GETTING BEES FROM BEE TREE

I have found a bee tree about a mile from my place and would like you to tell me the best method of getting them.

They are in an old willow tree and the entrance hole is about four feet from the ground and about two inches in diameter. This tree can be destroyed to get the bees if necessary. I am not going to disturb them until next spring at apple blossom time.

What I thought of doing is as follows: Set a hive body in front of hole so the back of bottom board is level with the hole and about six inches from tree; connect the hive to tree by a taper tunnel made of mosquito netting, like sketch. May use leather or roofing paper for tunnel, and think I will nail bag between tree and hive so bees cannot get on tree close to entrance hole. My idea is to catch all the bees that come out for about four days, then at night close the hive and take home. I am going to introduce a new queen in queen cage the first day I put the hive on tree, but won't let her out until I have had the hive home a while.

After I have taken the hive home, I want to get the brood comb into another hive with bees and queen if possible, then take the honey and divide some of it into each hive.

Do you think I can split and requeen the first lot without their going back to tree? Do you think they will accept the queen? Would you do as I think of doing, or would you cut them out of tree and put all in hive by tying brood comb into empty frames?

Please tell me just what you would do if you cared more for bees than you did

for honey. I have never taken bees from tree, and any information you can give me would be greatly appreciated by me.

NEW HAMPSHIRE.

Answer—You may do as you suggest in connecting the hive to the colony in the tree. But in that case I would drive the bees and queen into the hive by cutting an opening on the opposite side of the tree and driving them out by smoke. After that you could cut out the brood combs and fasten them in frames to introduce them in the hive.

Personally, if I had this tree to take care of, I would cut it down, then transfer the bees out of the log in the usual way of transferring, which we describe in our little pamphlet, "Every Step in Transferring Bees."

We don't believe in losing a bit of good worker comb. We transfer every bit of it, if straight. We believe still more in saving every cell of worker brood.

After you have transferred the bees into a movable-frame hive, there will be no difficulty in changing the queen if you see fit to do so.

SAVING HONEY FOR SPRING

I have several shallow supers of sealed honey which I would like to save and put on my bees next spring. While looking over them I find waxmoths have started to working in them. How can I destroy the moths? Will the treatment in any way injure the honey to be given back to the bees?

INDIANA.

Answer—Cold weather kills the larvae of the waxmoths. So if you will keep those combs of honey for a few weeks in a room where there is no fire, the moths will be killed.

The only way in which moths can keep alive in the climate of our Middle States is by staying in the hives of bees where the warmth of the bees prevents them from dying. That is why there are so few moths in the spring, in localities where it freezes hard during the winter.

Of course, if you keep your combs in rooms that are kept warm they will live through to the warm weather.

Honey Trade in France

The honey industry is carried on in practically all parts of France, in individual enterprises, 1,000 hives or less, with very few exceptions, states a report dated July 13, 1929, from Assistant Trade Commissioner George A. Berkalew, Paris. Though no exact statistics are available, total production is estimated at 7,716,100 pounds. The main producing areas are in the districts of Gatinais, French Brittany, Landes, Drome, and Savoie. The Gatinais region produces about 30 per cent of the total French output, and its honey is noted for exceptional quality, commanding the highest retail price. Brittany honey is dark amber with a distinctive flavor and is sold for confectionery and pastry manufacture. This type comprises about 20 per cent of the total production. Landes, also producing about 20 per cent, has a dark honey commonly called "pine honey," which is used in making the lower grades of confectionery. A light amber honey is produced in the Drome and

Savoie regions from lime trees and wild flowers. This area contributed roughly 15 per cent of the total. In the smaller provincial towns located in the producing areas, the honey used by the confectioners and retailers is purchased directly from the beekeepers. An annual fair is organized also where the surplus stocks of honey and wax are sold to Paris dealers. The big producers sell direct to wholesalers or to retailers in large consignments. The quantity of comb honey marketed or consumed in France is practically negligible.

Packing methods vary widely. A large proportion is packed in wooden barrels of 100, 200 or 400 pounds net. White and light amber honey is repacked in tin, or more frequently glass containers, for retail and consumer trade. Honey imported from Mexico and the Dominican Republic is usually shipped in 300-kilo barrels (661 pounds), while United States honey is packed in 30-kilo tins, two to a case.

Exports of honey during 1928 were 2,028,232 pounds, compared with 2,799,842 pounds during 1927. More than 50 per cent of the exports went to Holland and the remainder to Belgium, Algeria, Germany, and Switzerland, in order. It is estimated that this year's total will equal, if not exceed, the 1927 figure. Imports last year amounted to 1,172,847 pounds, as against 1,893,310 pounds during 1927. Principal countries of origin during 1928 were Haiti, United States, Belgium-Luxembourg, Mexico, and West Africa. Current prices (first half July) to wholesalers were 16.1 cents per pound for high quality whites and 17.8 cents for superior water white. Dark amber honey from Brittany and Landes varied from 8.9 to 9.8 cents per pound. The manufacture or distribution of synthetic or artificial honey is forbidden in France, under the pure food law of 1905.

To Secure a Clean Cake of Wax

When rendering, this is not always easy, especially for the sideline beekeeper who has not an elaborate equipment. A useful hint is given by a correspondent of "Neue Bienenzeitung" (May number): Blow upon the melted wax as soon as it has been lifted off the fire, so as to drive the scum to one side, where it will sink. Continue till there are no impurities on the surface of the wax. It would no doubt be possible to use a bellows instead of the mouth, in the interest of hygiene and of the operator's personal comfort, so that the method could possibly be adapted for use with wax-rendering plant on the commercial scale.

A. D. B.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

North Dakota Beekeepers Hold Meeting January 14-16

Marketing and the relating subjects of transportation and storage will be some of the main topics of discussion at the annual meeting of the North Dakota Beekeepers' Association, held in conjunction with the North Dakota Farmers and Homemakers' Week at the North Dakota Agricultural College January 14, 15, and 16.

A short course in beekeeping, arranged especially for beginners in beekeeping, will be held January 14. This course, which is put on in compliance to a number of requests from beginning beekeepers, will consider such practical subjects as spring care of the apiary, summer management for honey production, preparing honey for market, and several other subjects of importance to the beginner.

On January 15 and 16 the Beekeepers' Association will hold their annual meeting, at which time the association business will be transacted. The subjects to be covered at this meeting, according to Prof. J. A. Munro, secretary, will be of more importance to the commercial and large scale beekeepers, but at the same time will be of interest to beginners who come in especially for the short course.

Beekeepers who attend the meetings will have an opportunity to sit down to checked-cloth covered tables in the college Lincoln log cabin and eat a banquet served to bee men and their friends on the evening of January 15, according to Mr. Munro. Names of prominent speakers and details of the meeting will be announced at a later date.

New Officers for Washington

C. W. Higgins, of Wapato, Yakima County, was elected to the presidency of the Washington State Beekeepers' Association at the annual convention of the organization in Mount Vernon, December 4 and 5. Mr. Higgins is Yakima County inspector and has been active in state work for some time. He succeeds Fred Mandery, of Tenino.

Other officers chosen for the coming year are: Vice-president, E. J. Campbell, of Olympia; secretary-treasurer, R. L. Webster, of Pullman; directors, Floyd Buck of Walla Walla, M. F. Mommsen of Parkland,

and Miss Elizabeth Dickerson of Woodinville. Miss Dickerson is one of the interesting characters in the association and is a widely known authority on bee culture.

It was decided that the 1930 convention will be held in Ellensburg. Inspection, diseases of bees, the small producer and his problems were considered.

The group asked that concerted effort be made to secure enforcement of the present state and national laws on the practice of labeling honeydew as honey. The establishment of an agricultural field station on the Pacific Coast was advocated.

Honey played a prominent part on the luncheon and dinner menus during the convention.

Skagit County, of which Mount Vernon is the county seat, is one of the outstanding bee sections of the state, the industry netting \$200,000 annually.

Idaho Association to Meet at Buhl

An inspectors' meeting will be held in connection with the Idaho Beekeepers' Association convention, which will be held soon at Buhl, Idaho. M. L. Dean, director of plant industry, will be on hand to explain new phases of the inspection law.

Frank Beach, of Burley, president of the association, will speak, also A. P. Sturtevant of the Federal Bureau of Entomology Field Station at Laramie. Mrs. H. H. Keck, of Paul, Idaho, is on the program to explain the use of honey in the home, and R. D. Bradshaw, of Wendell, for wintering of bees.

Tri-County Beekeepers Meet

The Tri-County Beekeepers' Association of Delphos, Ohio, held their last regular meeting of the year at the home of L. E. Foley, East Sixth street, Delphos, recently.

The following officers were re-elected for the coming year: President, F. T. Allemier; vice-president, George Morrison; secretary-treasurer, L. E. Foley.

Following the meeting a delicious lunch was served by Mrs. L. E. Foley and Mrs. Henry Dienstberger.

Florida Fair

The South Florida State Fair will be held at Tampa January 28 to February 8. One day will be designated Bee Day. The Governor will speak

and invitations are being sent out to beekeepers over the state to attend on that day.

Meeting of the Ohio Beekeepers

The winter meeting of the Ohio State Beekeepers' Association will be held February 6, 7, and the forenoon of the 8th, at the Ohio State University, in conjunction with the annual Farmers' Week program.

There are four speakers of national reputation from outside the state, besides some prominent commercial beekeepers, the State Apiarist, the Extension Specialist and the man who has charge of teaching beekeeping at the University, who will take part in the meeting.

The program covers a wide range of subjects in beekeeping and is one which will prove very educational. Everyone is cordially invited to attend the meetings.

W. E. Dunham, Sec'y-Treas.

Iowa Short Course and Annual Convention

The Iowa annual short course will be held in connection with the Farm and Home Week on the days of January 28, 29, and 30. Special emphasis will be placed upon the problems of stock improvement, better management, and disease. The staff will be assisted by out-of-the-state speakers: Dr. A. P. Sturdevant, of Laramie, Wyoming; T. W. Burleson, of Waxahachie, Texas, and Jay Smith, of Vincennes, Indiana.

The annual convention of the Beekeepers' Association of Iowa will be held at Ames in conjunction with the short course on the days of the 29th, 30th, and 31st. The program will be made up entirely of local people discussing topics of immediate interest to the production problems of the state. Important legislative matters affecting the industry in the state and national legislation will be considered and policies will be determined.

On December 18 Dr. L. H. Pammel spoke before the seminar of the Botany and Zoology Department and invited guests, including administration officials of the college and of the state, on the subject of honey plants of Iowa. Dr. Pammel is just completing twenty years of study on the honey plants of Iowa and has in press a publication of fifteen hundred pages. This book will be published by the state and will be distributed at cost of publication.

Following the seminar, a honey luncheon was served to the guests. The menu was composed of peanut butter, honey sandwiches, coffee, ice cream with honey chocolate syrup, honey oatmeal cookies, and honey macaroons.

F. B. Paddock, State Apiarist.

Northwestern Illinois Meeting (Rock Island)

Beekeepers of Rock Island, Mercer and Henry counties, Illinois, held a joint meeting at Rock Island, at the Hotel Fort Armstrong, Saturday, December 7. This immediately followed the state meeting at Springfield, so the speakers at the state meeting were able to attend this one also, including J. M. Deyell of the A. I. Root Company, Deputy Inspector Karl Tudor of DeKalb, Illinois, and G. H. Cale, associate editor of the American Bee Journal.

Mr. Deyell brought many points of interest to this meeting from his experience in the Root apiaries, numbering some twelve hundred colonies. Mr. Cale discussed bees in the orchard. There were quite a number of men who were beekeepers and orchardists also present and they showed considerable interest in this new phase of beekeeping. A feature of the meeting was broadcast from WHBF, Beardsley's local station in Rock Island, both at noon and at night. At noon the broadcasts were by Mr. Deyell and Mr. A. G. Gill, of the A. I. Root Company of Chicago. In the evening the broadcast was by Mr. Cale, the associate editor of the American Bee Journal. Several long distance telephone calls indicated that there were quite a number of listeners among the beekeepers.

This is a feature of publicity which should be pushed harder.

Illinois Convention

The annual convention of the Illinois State Association held at Springfield, December 3 and 4, was relatively small owing to the snowy, bad weather. There was probably not over fifty representative beekeepers in attendance. The program was well rounded out and probably the most interesting numbers were from Illinois beekeepers, who told of their experiences in honey production, bringing out some very fine points. Charles A. Kruse, of Paris, Illinois, star comb honey producer, made an excellent talk. Mr. Kruse, a follower of Dr. C. C. Miller, using eight-frame hives and T supers, which have been greatly improved at his hand, produces excellent crops of honey.

M. G. Dadant and G. H. Cale of the American Bee Journal, J. M. Deyell of the A. I. Root Company, and V. G. Milum, secretary of the association and apiculturist at the University of Illinois, gave very interesting talks.

Mr. Deyell, from his experience as manager of the Root apiaries of over a thousand colonies, brought out many practical points which were of interest. Mr. Cale's discussion of "Bees in the Orchard," illustrated with pictures of results which are

being obtained in this new lineup between beekeeper and fruit grower, made suggestions which were valuable.

J. F. Diemer, of Liberty, Missouri, was one of the headliners, and in his entertaining and unique way added greatly to the program. Mr. Diemer is one of the oldest and best of American queen breeders.

At the business meeting T. H. Mackelden, of Jerseyville, Illinois, was elected president and V. G. Milum re-elected secretary. Five vice-presidents were elected for 1930.

At the annual banquet on the evening of December 3, Dr. Smith, of the State Legislature, and also Director of Publicity, spoke. In his talk Director Smith gave many suggestions for the improvement of beekeeping in the state, particularly relative to the advertising of Illini honey through the use of a special oval label or the inclusion of a phrase similar in the usual labels used on packs of honey being distributed by beekeepers or beekeeping associations in Illinois.

The report of State Inspector A. L. Kildow was received with interest and showed plainly that Illinois is doing very well in its control of the disease situation.

Southern States Conference at Baton Rouge, February 26, 27, 28

This meeting will be of exceptional interest, as a queen breeders' short course is scheduled along with it under Prof. William H. Gates, the geneticist, who will give a lecture and demonstration. There are many important problems and unfinished business from last year.

This meeting comes during the carnival season of New Orleans, and greatly reduced railroad rates will prevail.

Another problem will be the honey market in the southern states. Mr. William H. Gehrels will be there and will tell what he has done in exporting honey for the Louisiana beekeepers in the past few years. He is also getting in shape to handle honey from adjoining states.

Let Every Beekeeper Observe This Precaution!

The attention of each beekeeper is called to the importance of securing a receipt or certificate for railroad fare paid to the convention of the American Honey Producers' League, Milwaukee, Wisconsin, February 4-6. One hundred and fifty certificates must be presented at the time of the meeting in order that the half fare return rate will apply.

Those interested in these problems should be sure to be there and get some of the ups and downs of this proposition. All bees are in winter quarters and it is vacation time. Why not attend this convention, which is a real Southern States Beekeepers' Convention? Your only credentials are to walk in at the meeting.

A complete program of the conference will appear in the February issue. Jes Dalton.

Ontario Fiftieth Annual Convention

The fiftieth annual convention of the Ontario Beekeepers' Association (the Golden Jubilee celebration) was held in Toronto, November 26, 27, and 28. It was a great event. There was a swing, a brightness, a wealth of information which commanded the closest attention at each session.

The Golden Jubilee banquet, on the 27th, was thoroughly enjoyed. President McKinnon discharged the duties of toastmaster in a very capable and dignified manner; the toasts were proposed and responded to with a "feast of reason and flow of soul" which is characteristic of a great convention banquet, and the delightful orchestral numbers were very enjoyable.

An interesting feature of the banquet was the special recognition of charter members, Messrs. J. F. Duan of Ridgeway, William Couse of Streetsville, and M. B. Holmes of Athens. This was in the form of a well-worded address, and a silk umbrella, beautifully mounted and engraved with the date, the name of the donor and the name of the recipient, to each of the charter members.

Responding to the honor, Mr. Holmes expressed the fact that the Ontario Beekeepers' Association is The Home of every beekeeper in Ontario and that every beekeeper in the province should write Secretary F. E. Millen for membership. Mr. Holmes closed with an appropriate literary recitation.

The Golden Jubilee Song, written by Mrs. William G. Towriss, of Athens, was handed to each one in attendance.

Golden Jubilee Song Tune, "Yankee Doodle"

Our Golden Jubilee has come, we're gathered in convention
To celebrate our fifty years of triumph and of tension;
Sometimes grave, and sometimes gay, we've yearly met together,
To educate, and stimulate, in fair or stormy weather.

Away back there in 'seventy-nine, when some men had a vision
Of making money out of bees, they met with much derision;

Waving prejudice aside, those kindred souls assembled,—
At the project, we confess, the bravest of us trembled.

We've learned about the Langstroth hives, Italian queens, and supers, We've learned to market A-1 goods, and crowd out worthless dupers; A-I-R-line goods are prized by all, compulsory registration is placing apiculture on a standardized foundation.

From year to year, we look ahead with glad anticipation
Till we can meet and greet again, in this Association;
We confess our hearts are sad, we miss so many faces,
New friends are dear, but yet we miss the old friends from their places.

Now, there are two we always meet at every such convention,
And these two are so widely known, we scarcely need to mention:
Couse of Streetsville town, and Holmes of Athens, classic city,
Charter members, highly prized, each suave, and learned and witty.

Through all these passing fifty years we have enjoyed our meetings,
We love to gather, clasp the hands, and give fraternal greetings;
Let's prepare for joys beyond, in heavenly bliss supernal,
That we may meet, to part no more, to dwell in Realms Eternal.

Illinois Short Course, January 14-17

A well arranged short course for beekeepers will be held January 14-17 at the University of Illinois, Urbana, in connection with Farm and Home Week. A number of beekeepers attend every year, not only for beekeeping, but for other valuable courses given at this time in other subjects which interest them. This beekeeping course makes it possible to combine a winter program of education which is entirely worth while.

V. G. Milum, of the University, and Secretary of the state association, is in charge of the course. He will be aided by M. D. Farrar of the State Natural History Survey, G. H. Cale, associate editor of the American Bee Journal, and others. The lessons will be as practical demonstrations, illustrated talks, and black-board discussions of important beekeeping problems.

The following is a partial outline: Demonstrations of management and equipment; brood diseases and their treatment; bees in orchards; seasonal management for both comb and extracted honey production; care and marketing of honey.

Annual Winter Short Course in Manitoba

The eighth winter short course is planned by the Department of Entomology of the Manitoba Agricultural College, Winnipeg, January 20 to 31. This course has proven very popular since it was first started, and many of the beekeepers of the Province take advantage of this chance to learn more while their bees are tucked away for winter. It is, above all, a splendid chance to meet others and exchange notes and experiences as well as learn what is new in the world of bees.

The registration fee is \$5.00, with room and board in the dormitory at \$13.00. Full particulars as to subjects and staff may be obtained by writing directly to the college.

Idaho Honey Producers Meet

The Idaho State Honey Producers' Association closed its two-day convention here December 17 with a banquet, following the business session at which officers for the coming year were elected and Boise chosen as the 1930 convention city. Frank Beach, of Burley, was re-elected president; Harry Newberry, Filer, vice-president, and Mrs. E. F. Atwater, Meridian, secretary and treasurer.

Idaho's honey production this season was a little more than 50 per cent of normal, reports indicated. Estimates for the season approximated 125 carloads as against 200 carloads last year. Bees are in good condition, apiarists report. An imperative need of better inspection service to prevent spread of disease among the honeybees was brought out by speakers.

Dr. A. P. Sturdivant, of Laramie, Wyoming, Department of Agriculture Associate Apiarist, addressed sessions both days of the convention. He discussed marketing problems. A. W. B. Kjosness, former Commissioner of Agriculture for Idaho, and now manager of the Mountain States Honey Producers' Association, also talked on marketing. He spent considerable time in Washington soliciting a Federal farm loan of \$135,000 from the Board, to be distributed among local beekeepers who have honey in storage.

Other speakers included three Idaho women beekeepers: Mrs. H. H. Keck, of Paul, who discussed "Uses of Honey in the Home"; Mrs. E. F. Atwater, who spoke on "Uses and Advertising Honey," and Mrs. Frank Beach, of Burley, who gave "Recipes for Use of Honey as a Substitute for Sugar." R. D. Bradshaw, of Wendell, former president of the Idaho Honey Producers' Association, also spoke. Topics such as caring for and wintering of bees, cost of production and handling were discussed. In-

fections were noted by M. L. Dean, of Boise, State Director of Plant Industry.

A round table discussion on sugar as a health food was an interesting feature of the closing day's program.
G. P.

Doings in the Northwest

(Continued from page 17)

ing 1929. There have been 756 apiaries, or a total of 10,677 colonies, examined this past season, as compared with 675 apiaries having 6,964 colonies inspected in 1928. The work has been greatly facilitated by the action of the Snohomish County Commissioners, who have provided \$500 for bee inspection work within their county. The state of Washington appropriates \$2,000 every two years for carrying on the campaign against disease, which has shown the inspection work to cost about 13 cents per colony inspected, as compared with 9.8 cents for Colorado, 6.2 cents for Montana, 32 cents for Nevada, and 26 cents for Wyoming. The policy of Washington inspectors has been to resort to drastic treatment only in such cases as beekeepers have been unable or unwilling to perform an intelligent cleanup.

Four tons of straight wild clematis honey were obtained by Mr. W. H. Turnbull, of British Columbia, Canada, from one of his apiaries. The honey is light amber in color, somewhat cloudy in appearance, and of a most pleasant, butterscotch flavor. It is of exceptionally heavy body, the combs requiring more than half an hour in the extractor and then not being entirely clean of honey. Even at room temperature the honey is so heavy that no bubble will arise in an inverted jar. Mr. Turnbull had a special label made and has been packing the clematis honey separate from the rest of his crop.

At one of the logging camps of the Turvey Brothers, located at Tenino, Washington, comb honey and hot biscuits is frequently on the menu. The heavy, outdoor work creates enormous appetites among the men and they require large quantities of energy-producing foods. Meat is one of the major items in many of the logging camps and forms a big part of the food bill. According to reports from the Turvey camp, honey is relished by the men and provides them with energy for their work, at the same time lessening their appetite for meat. The camp cook states that since honey has been used regularly the meat bill has been considerably lowered, thereby lessening the total expense of feeding the men.

At the date of writing (December 8), eastern Colorado has already experienced thirteen snowstorms, ranging in depth of snow from two to



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eight inches. Although this unusually stormy weather is unpleasant and disagreeable, beekeepers rejoice over the prospects of abundant snowfall to be stored in the mountains for next year's supply of water for irrigation. The major honey-producing plants of the region, alfalfa and sweet clover, rely upon irrigation for their growth, so that beekeepers are encouraged by the accumulation of snow on the eastern slope of the Continental Divide.

Reports from Prof. O. A. Sippel, Montana State Apiarist, are optimistic regarding the 1930 honey crop in the Mountain Treasure State. The long dry spell and the shortage of sweet clover bloom which marked the 1929 season were responsible for the short crop, which was only 60 per cent of normal. Present indications for an increased acreage of sweet clover, together with colonies entering the severe part of the winter strong in bees and with an abundance of good quality stores, point to normal yields for the coming season. Although inspection reports have not been completely condensed and arranged, disease conditions in Montana are much improved, according to a hasty survey of the records by Professor Sippel. Beekeepers are learning to cooperate among themselves and with state officials in carrying out control measures, which accounts for the bettered conditions.

The Montana State Beekeepers' Association convention was held in Billings, December 9 and 10. Corn sugar legislation, disease control within the state, honey house inspection, and contemplated changes in the state law were the major topics of discussion. The beekeepers welcomed Mr. A. H. Stafford, Montana's new Commissioner of Agriculture.

A report issued by the Mountain States Honey Producers' Association as of September 30, 1928, shows that the organization handled for its members 5,152,953 pounds of white honey and 561,060 pounds of amber honey in the 1929 season. The honey in the white pool sold at an average of 8.133749 cents per pound, and in the amber pool at 7.659024 cents per pound. After the expenses of the Association were deducted, the white pool showed the producer a return of approximately 6.3 cents per pound, and the amber pool 6 cents per pound.

Heavy rains gradually turning to snow on December 10 did much to alleviate conditions brought about by the drouth of long duration which has gripped the Northwest this fall. Seattle, Tacoma, and Vancouver, B. C., were threatened with a power shortage, due to low water in the reservoirs supplying hydro-electric plants furnishing power to these cities. For several weeks the U. S.

(Continued on page 42)

Crop and Market Report

Compiled by M. G. Dadant

For our January crop and market page we asked reporters to answer the following questions:

1. How is honey moving?
2. What proportion of the crop left on hand?
3. Will it all move before new crop?
4. Are beekeepers encouraged? Will they increase?

HOW IS HONEY MOVING?

In a very few exceptions the reports coming in as to the movement of honey are that it is considerably less than it was a month ago or two months ago. This is not an unexpected thing, because the honey demand usually drops off about the holidays and then picks up satisfactorily afterward. My impression would be, however, that there is more of a slackening than is the usual case, and no doubt the general business conditions have something to do with this.

PROPORTION OF HONEY ON HAND

The crop is moving satisfactorily all over the country, except perhaps in the Southeast, in the states of Florida and Georgia, where the movement has been unsatisfactory. There is some complaint also from Texas, although the demand has gotten somewhat better, contrary to what it is in other sections.

In the intermountain territory a large proportion of the honey is already moved and the balance of it is in the control of the Mountain States Honey Producers' Association and other cooperative bodies, so that it looks like there would be no difficulty in disposing of the balance.

It is, however, in the Central West and in some of the white clover eastern areas that the difficulty with honey seems to be greatest. Numbers of reports are coming in from the Central West that beekeepers have a considerable proportion of their honey left and that the demand is not great. It looks as though the carload shipper of honey has the advantage over his smaller neighbor who has only to ship in L. C. L. lots or to sell locally. The local demand in most instances has not been good, whereas the demand in the big markets and for export has been much better. Central New Yorkers are complaining that their honey is a drag on the market and that it will move, but at very much lower prices than they would like to have.

Here is the crux to the whole matter. It appears that cost of production in the eastern and central western areas is much higher than in the intermountain territory, where the larger beekeepers are located. Consequently the smaller beekeeper, when he has to seek a market outside his own locality, must expect a lower price in proportion to cost of production than the western man who ships in carload lots. This is true especially since the freight rates to ocean shipping points in the West have been considerably reduced from intermountain territory.

WILL ALL HONEY MOVE?

It does not appear likely that there would be much honey left on hand when the new crop arrives. There may be some of the lower grades in Texas and in Florida and Georgia, but undoubtedly most of the best honey will move. The same is true of the Pacific Coast states and the Intermountain states. There are a number of beekeepers in the Central West who fear that their honey will not all move, but, taken as a general rule, a good percentage has already gone out and it is without question likely that the bulk of the honey will be moved before the new crop is ready for distribution. In fact the only ones who were at all doubtful were those located in the South, as mentioned above.

PERCENTAGE OF HONEY LEFT ON HAND

The largest percentage quoted by any one individual producer left on hand was 70 per cent, and this amount was mentioned by one Ohio producer and one from Oklahoma. The average of the balance stood in the neighborhood of 25 to 40 per cent of the honey left on hand, and in practically every instance this was left in the hands of the moderately small producer in the Central West and in the East who were unable to ship in carload lots and were therefore seeking a price of 9 or 10 cents for their white extracted honey. Several of these stated that undoubtedly they could move their honey if they were willing to take 7 to 8 cents for the honey f. o. b. shipping point.

WILL THERE BE INCREASE

In my mind the replies reported to the above question show without a doubt the trend of the times and the thing that beekeepers are going to have to watch in the future. It shows that the only encouraged beekeepers are the smaller ones who have been working bees as a sideline and have kept their cost exactly on their honey production. That is, they have charged only to honey production the actual time and material used. The large beekeepers likewise are able to keep actual costs and show what their honey is costing them and undoubtedly are able to produce at a profit.

It looks like the moderately large beekeeper of the white clover producing areas, say the beekeeper with one hundred to two hundred colonies, is not going to be able to depend entirely upon his bees for a living, but has to figure the cost of his honey accurately and entirely upon the amount of time and equipment used with them.

In other words, as one of our reporters so figures it, it appears that the honey production business is moving into the hands of specialists. I disagree in one particular, and that is that it is going to move either into the hands of specialists or into the hands of producers who have it as a sideline and are able to figure their costs exactly and determine on this basis whether beekeeping can be made a paying proposition in their location.

Of course, we will always have that large body of beekeepers who are enamored of the beekeeping and honey industry and will keep on keeping bees regardless of the cost of production. Undoubtedly our big packing experts would say that this is the class of people who make it difficult to market honey, but on the other hand it would be very unfortunate if it were necessary for such a class to drop their avocation in bees just because they are not skillful marketers.

Undoubtedly when honey becomes a staple on the market, the beekeeper, regardless of whether he is figuring his cost of production or not, will want to sell at a remunerative figure, or at least at the market figure, just the same as the small producer of butterfat in this day.

Taken all in all, it does not appear like there would be any very large increase except from the new man who is just building up, and from the larger producer who has found that in "numbers there is strength," and is increasing rapidly.

The bulk of the reporters stated they were going to make up their losses and fill their hives, and this in itself will be considerable increase.

For the first time we have one reporter stating in his reply that he had killed his bees in the fall and expected to buy packages next spring, and he was no small producer at that. Perhaps this tendency is going to grow, and if it does, undoubtedly it will mean a lot of package shipment in the spring.

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BEEES AND QUEENS

HUNDREDS of two-and three-pound packages of pure Italian bees and queens for shipment in April and May, 1930. Also packages of hybrid bees at reduced prices. Write us for prices on these packages, nuclei, or any kind package you may desire. Cotton Belt Apiaries, Paris, Texas, Rt. 2.

TWO THOUSAND two- and three-pound packages of young pure three-banded Italian bees and queens for shipment April and May, 1930. Write for prices. W. D. Achord, Fitzpatrick, Ala.

"SHE-SUITS-ME" Italian queens. One 80c; six, \$4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, Kenner, La.

TESTED QUEENS—For the winter months. Queens for sale any time, sent anywhere; \$1.00 each. Send the order, get the queen, save the colony. D. W. Howell, Shellman, Georgia.

PACKAGE BEES AND QUEENS—Jasper Knight, Hayneville, Ala.

SUNNYLAND BEES ALWAYS PLEASE. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

GOLDEN ITALIAN QUEENS for 1930, the big, bright, hustling kind; the kind that get the honey. Satisfied customers everywhere. Untested, \$1.00 each; six, \$5.00; twelve, \$9.00; \$65.00 per hundred. Tested, \$1.50 each. Two-frame nuclei and two-pound packages a specialty. Write for prices. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honoraville, Ala.

MR. BEEKEEPER—This is to let you know O. P. Hendrix has bees and queens for sale, and I absolutely guarantee everything I send out to be first class in every respect. Give me a trial and be convinced. My business is growing every year. Bees shipped on date specified unless weather conditions make it impossible. O. P. Hendrix, West Point, Miss.

CAUCASIAN QUEENS for 1930 from imported mothers. One, \$1.50; six, \$7.50; twelve, \$14.00. Eighty-five per cent pure mated. Safe arrival and satisfaction guaranteed in U. S. A. and Canada. Tillery Bros., R. 6, Greenville, Ala.

PACKAGE BEES for sale, with good, three-banded, young, untested Italian queens, at the lowest price on the market. Write for prices. M. Voinche, Bunkie, La.

PALMETTO ITALIAN QUEENS—Again we are at your service, Mr. Honey Producer. Let us solve your 1930 queen requirements. C. G. Ellison, Belton, S. C.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

HIGHEST grade Italian queens—Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed. T. L. Davis, Buffalo, Leon County, Texas.

HIGH GRADE three-banded Italian tested queen with two frames and three pounds of bees for \$5.00. Spring delivery. Satisfaction guaranteed. Rev. G. Besselaar, Bordelonneville, La.

THAGARD's three-banded Italian queens are very gentle, beautiful and truly wonderful honey gatherers. One, \$1.00; twelve, \$9.40; one hundred, \$70.00. Write for prices on package bees. V. R. Thagard Company, Greenville, Ala.

PACKAGE BEES AND QUEENS—Let us quote you prices that will save you money. Thomson & Hodges, Cottonwood, California, and Coeur d'Alene, Idaho.

REACROFT Italian bees that please. Better than ever. Two-pound package, \$2.50; three-pound package, \$3.50. Add price of queen if wanted. Selected queens: One, \$1.00; ten, \$9.00; twenty, \$16.00. Write for circular and quantity prices. Prompt service, beginning May 1. George H. Rea, Reynoldsville, Pa.

WRITE for prices and folder on our guaranteed bees and queens. N. B. Smith & Co., Calhoun, Ala.

HAPPY NEW YEAR—We are now starting the good year 1930. Let us all resolve to be better beekeepers and produce more and better honey. Let us help you do this by supplying you with the best in package bees and queens at a reasonable price. Write for circular and price list. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

FOR SALE

FOR SALE—600 colonies bees with extracting equipment, fully equipped; located in the heart of the sweet clover belt of North Dakota. No disease. Reason for selling, other interests. Write F. S., care Bee Journal.

AT exceptional bargain. Twin mating hives. Jumbo or standard frame. Write for particulars. Jay Smith, R. 3, Vincennes, Ind.

HONEY FOR SALE

FOR SALE—White clover honey with true white clover flavor, in new 60-pound cans. By golly, it's good. Price and sample. J. W. Bittenbender, Knoxville, Iowa.

Copy for this department must reach us no later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

FINE QUALITY white clover honey in new 60-pound cans, one to a case, 10 cents per pound. John Thompson, Lloyds, Md.

FOR the finest honey obtainable, reasonable, write Lee Horning, any time. A producer. Morrison, Ill.

DID you produce enough honey to keep your trade going? If not, write A. L. Kildow, Putnam, Ill. He will be glad to help you.

WATER WHITE extracted, in case, ton or carload. Use no capping melters. Sample 15c. George Seastream, Moorhead, Minn.

COMB, extracted and chunk honey in ten sizes glass containers and 2½, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with \$25 and \$50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

FOR SALE—Light amber honey from clover and goldenrod. Lewis Klaty, Carsonville, Michigan.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—Clover honey in new sixties. Prices on request. Roy Littlefield, Exira, Iowa.

WANT bids, on car lot only, fancy sweet clover comb honey of 1930 crop, up to June 1. R. A. Morgan, Vermillion, S. D.

WATER WHITE clover honey, heavy body, clear as crystal, 10c pound. Woodland Apiaries, Howell, Mich.

FOR SALE—Light amber and dark amber extracted honey. Samples 15c. Oak Ridge Farm, Stuyvesant, N. Y.

FOR SALE—Fall honey in 60-pound cans. A. G. Kuersten, Burlington, Iowa.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—No. 1 clover comb honey, \$4.50 per case; No. 2 clover and dark comb, \$3.00 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Extracted honey in 60-lb. cans. Henry Hettel, Marine, Ill.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill. DeKalb County.

FOR SALE—Clover honey in 60-lb. cans. Sample and prices on request. E. C. Rasmussen, Exira, Iowa.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Fillion, Mich.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey. The Colorado Honey Producers' Ass'n, Denver, Colo.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

NEW CROP white clover extracted and chunk comb honey. Write for sample and prices. Kalona Honey Co., Kalona, Iowa.

CLOVER HONEY—No. 1 white; 60-lb. cans, 9c. Edward Hassinger, Jr., Greenville, Wis.

EXCELLENT quality white clover honey. New cans; 9c pound. Section and chunk comb priced to sell. Ohmert Honey Company, Dubuque, Iowa.

HONEY FOR SALE—Comb and extracted. Write O. S. Biggs, San Jose, Ill.

FOR SALE—Honey, white clover-heartsease blend, 10-lb. pail \$1.65, postpaid in third zone. Satisfaction guaranteed. Rates on larger lots. Sunny Nook Farm and Apiary, J. T. Johnson, Prop'r, Percy, Ill.

EXTRA QUALITY clover belt white honey in 2-60 cases. Sample 15c. Carl J. Shover, 120 South Dartmouth St., Kalamazoo, Mich.

WINKLER'S choice clover honey at 9½c pound; five-case lots at 9c pound. Sample 15c. Winkler Honey Company, Joliet, Ill.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Raspberry and clover extracted honey in new 60-lb. cans; two cans to case; \$10.00 per case f. o. b. Lake City. Earl L. Baker, Lake City, Mich.

SHALLOW FRAME comb honey, also extracted. Both white, new crop, and principally from clover. L. D. Taylor, Chandler, Okla.

WATER WHITE alfalfa and sweet clover honey. Carload or less. Write for prices. McIntire & Sons, Fruitdale, S. Dak.

FOR SALE—Bulk comb honey in frames or any type container. Hyde Brothers, New Canton, Ill.

FINEST white clover honey, 10c pound. Edward Klein, Gurnee, Ill.

COMB HONEY—Packed to suit your trade. Prices on request. F. B. Sherman, Edgerton, Wis.

WHITE CLOVER honey in new 60-pound cans; comb honey in glass front cases. Edwin Krinke, Bay City, Wis.

HEAVY FANCY white comb, \$5.00 case; fancy, \$4.75; No. 1, \$4.25; No. 2 white, amber or buckwheat, \$3.50; in carriers of six cases each. Clover extracted, 10c. C. B. Howard, Geneva, N. Y.

FOR SALE—Straight white clover comb, standard 4¼ sections. C. Holm, Genoa, Ill.

CHOICE clover honey in 5's and 60's. W. H. Mays, Goshen, Ind.

FINEST QUALITY white clover honey; also light amber of same quality. State quantity wanted. Martin Carsmoe, Ruthven, Ia.

HONEY AND BEESWAX WANTED

HONEY WANTED—Both extracted and comb. Mail sample extracted. Describe comb, size section, grade, and how packed. Always mention quantity. Hoffman & Hauck Division, 646 Dean St., Brooklyn, N. Y.

HONEY WANTED—Small or large lots, white or extra light amber grades, in 60-pound cans. Send samples, state quantity and lowest N. Y. delivered prices. Arthur H. Hoffman, Inc., Richmond Hill, N. Y.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

SUPPLIES

SHIPPING CAGES for less than ever. Cut, ready to mail, from sugar pine. No metal. Shipped flat at the lowest rates. Sample, postpaid, 15 cents. E. P. Stiles, C. P. O. Box 422, Houston, Texas.

60-POUND used cans special. Can supply 500 cases practically new cans, mostly large cap openings, dry heated, not rusty, at special price 25c case while they last. Order quick; payments on arrival. Arthur H. Hoffman, Inc., 1043 Wyckoff Ave., Brooklyn, N. Y.

USED 5-GAL. TINS—Can ship 500 cases or more dry heated used cans, mostly large caps, finest cases, at 25c case special f. o. b. N. Y. City, and suggest ordering now for spring and summer crops, as none on hand after April. Arthur H. Hoffman, Inc., Richmond Hill, N. Y.

BEE SUPPLIES at factory prices. Hoffman frames, \$3.95 per hundred. Catalog free. Schmidt Bee Supply Co., R. 2, North St. Paul, Minn.

COMB FOUNDATION—Note these prices on twenty-pound lots: Medium brood, 64c; thin super, 74c. Can furnish the new non-sagging foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

BEEWARE, Dadant's wired foundation and "Canco" cans for the Northwest. Catalog prices f. o. b. Fromberg, Montana. Write for prices. B. F. Smith, Jr., Co., Fromberg, Montana.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for \$1.00 Allen Latham, Norwichtown, Conn.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000. Superior Honey Co., Ogden, Utah.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly. The Colorado Honey Producers' Ass'n, Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

WANTED

EXPERIENCED beekeeper wishes connection with large producer of comb or extracted, either to manage or run on share basis. Preferably in the states of Idaho, Montana or Wyoming. A. Wendte, 1002 East Seventh St., Los Angeles, Calif.

EXPERIENCED BEE MAN—Operating two thousand colonies. Must be sober and trustworthy. Write fully in first letter, experience qualifications, age, and wages expected. Stahmann Apiaries, La Jara, Colo.

WANTED—Young, energetic men of clean and good habits, with farm training, for 1930 season, to assist in large scale extracted honey production. Modern methods practiced, with up-to-date equipment. Particulars on request. The Hofmann Apiaries, Janesville, Minn.

MAN, 45, would like position in queen-rearing establishment. Can do carpentering and concrete work. Rollin N. Carl, Hinesburg, Vt.

WANTED—A man to help operate four hundred colonies. John Jessup, care Root Company, Council Bluffs, Iowa.

WANTED, in apiary, as assistant man with thorough knowledge and wide experience. Permanent position and chance for advancement to right party; \$60 month, room and board. Give full particulars in first letter: experience, age, single or married. George Morrison, 548 West 22nd St., New York City.

CHICKENS

S. C. W. Leghorn chicks of quality. Write for our 1930 prices. Oak Ridge Farm, Stuyvesant, N. Y.

RABBITS

IF you are looking for A No. 1 stock Chinchillas, standard and heavyweight, black silver fox fur rabbits, write for prices. Lieske's Rabbitry, Box 155, Fairwater, Wis.

BLACK silver fox fur rabbits. Ten days special, January 10 to January 20: six-month, \$5.00, breeding age; bred, \$10.00. Pedigree. H. G. Lieske, Fair Water, Wis.

MISCELLANEOUS

SELL IT—Honey or bees or queens or second-hand equipment or pet stock or poultry, by advertising in *Gleanings in Bee Culture*, Medina, Ohio, with its more than 20,000 paid subscribers. Rates: 7c a word classified; \$4.20 an inch for display advertising. That great beekeeper, George S. Demuth, is editor, for whose beekeeping teachings 20,000 beekeepers subscribe.

PLANS for poultry houses; 150 illustrations. You need this book. Write for free offer and sample copy of "Inland Poultry Journal," 51 Cord Bldg., Indianapolis, Ind.

WAX—New and safe method, in frame or out; also well drained cappings, damaged honey in frame or out, foul or not. Circular. George Pratt, 2235 Penn Ave., Topeka, Kans.

FOR EXCHANGE—1927 Ford truck, in good condition, also four-door Chevrolet sedan in No. 1 condition, for full colonies bees. Must be free from disease. Lawrence C. Loveall, Wetmore, Kansas.

WILL EXCHANGE good, clean eight-frame equipment for honey. All painted, mostly new. Merritt Cook, Arlington, Neb.



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We are ready to line up orders for Spring. To send bees and queens at the first Robin's call—better bees and queens than we have ever shipped before—from a bigger and better outfit. * Orders filled in rotation. Please book early.

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Root Queens and Bees will help to increase your honey profits. Write for prices and any beekeeping information you may desire. We want to help you succeed.

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Italians :: Carniolans

ROUTE THREE
VINCENNES, INDIANA

Doings in the Northwest

(Continued from page 38)

Navy's huge electrically driven airplane carrier Lexington was held in Puget Sound so that its steam-driven generators might add, if necessary, to the gradually diminishing current supplied by the Tacoma power plants. Beekeepers are in hopes that the drouth, which brought about the driest fall on the records of the Weather Bureau and was indirectly responsible for an enormous increase in the ravages of forest fires, has been broken sufficiently early to enable the honey plants to reach their normal development by spring. Incomplete reports of the Washington Forest Fire Association show 300,840 acres burned over in 1929, as compared with 89,084 in 1928, 58,142 in 1927, and 104,981 in 1926.

The December 2 issue of the Market News Service of the United States Department of Agriculture, Bureau of Agricultural Economics, includes in the honey report several recipes for the making of Christmas candy using honey. The recipes were furnished by the American Honey Institute and will go to many brokers and commission houses, as well as

to beekeepers. The same issue reports the demand for honey as slight throughout the Pacific Northwest and the Intermountain states, with prices ranging from 7 to 9 cents per pound. Stocks are getting light and some sections are already cleaned up. Bees are in good condition throughout the territory.

The Snohomish County, Washington, Beekeepers' Association reports that it has procured a microscope for the use of its bee inspector.

Watson Improves Method of Controlled Mating

In a reprint just received from Dr. L. R. Watson, from the Journal of Economic Entomology, under the title "New Contributions to the Technique of Instrumental Insemination of Queenbees," we learn of the result of this method in the hands of Dr. Watson for the past several seasons and note the improvements which he has made in this method of controlled mating.

These improvements are in the manipulation of the drone organs and the temperature relationship of insemination.

The Odor of the Colony

Dr. Von Buttel-Reepen finds several different odors in the hive of bees, as follows:

1. The individual odor: a. The odor of the queen (very strong); b. that of the worker; c. that of the drone.
2. The odor of the race in addition to the individual odor.
3. The odor of brood and of chyle.
4. The odor of beeswax.
5. The odor of the honey.

These different odors vary so as to make innumerable variations. We might also add the odor of the wood of the hive itself, which is often quite perceptible, even to human beings.

That Apple Picture

So many have written about the apple picture on the November cover. One horticulturist, in Manitoba, was kind enough to call it the best picture of apples he had ever seen. Good; that suits.

We pass the buck, though. The picture was loaned to us by "The American Fruit Grower," published in Chicago, and was taken in the West, where they do raise apples, too. Fruit men all know this paper. It is in the lead among fruit publications.

37 Successful Years

is convincing proof that **THRIFTY BEES** always please. Get our attractive prices on package bees and queens before placing your order.

W. J. Forehand & Sons
Fort Deposit, Alabama, Since 1892

PURE ITALIAN BEES

Untested queens.....\$1.00
Tested queens.....1.50
Will replace any queen that does not please you. Satisfaction given.

J. ALLEN, Catherine, Alabama

MACK'S QUEENS

are the most scientifically reared queens to be found in America. High Quality queens at quantity prices our aim and achievement. A postal will bring our prices for 1930.

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(The Bee and Honey Man)
Robinson R. 2 Illinois

We are CASH BUYERS of HONEY and BEESWAX

Submit samples, and best prices, freight prepaid Cinti.

We also furnish cans and cases.

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Pearl & Walnut

Cincinnati, Ohio

Are Beekeepers Farmers?

It appears that, in England, they establish a difference between a country home and a farm house. Thus a man living in the country is assessed higher than a man who makes his living from the soil. Hence the question: Is a beekeeper a farmer? The Daily Express of November 11 published the following:

"Country House"

Mr. Christopher Bartlett, of Sandford Mount, Charlbury, appealed to the quarter sessions against the assessment of his house, because he was a beekeeper. His house had been assessed at £100, whereas he maintained that as a farmhouse the assessment should not be more than £40.

"He is the largest bee farmer in England," said Mr. E. Gorst, counsel for Mr. Bartlett. "His home has been assessed as a country house, whereas it is used by a man who is working an agricultural holding and is therefore a farmhouse in fact."

Dr. Earengy, counsel for the rating authority, and one of the foremost barristers on the Oxford circuit, submitted that beekeeping was not farming. Mr. R. T. Barre, the rating officer for the Chipping Norton Council, gave evidence that, in his opinion, £100 was the fair and proper assessment for Sandford Mount.

Eventually the magistrates upheld the appeal of Mr. Bartlett, and fixed the assessment of his house at £60—a reduction of £40 from the former ratable value.

Honey Production in Italy

There were about 632,325 bee-hives and 114,251 beekeepers in Italy at the end of 1928, according to the General Directorate of Agriculture. The returns upon which these figures were based were not believed to be fully comprehensive, as it was reported that some beekeepers may not have submitted complete reports. Honey production during 1928 amounted to about 5,104,530 pounds, an average of seven pounds per hive. The provinces of Emilia, Tuscany, Lombardy, Venetia, and Piedmont, with organized bee industries, are the chief producing areas. The Piacenza region leads in the number of beekeepers with 5,141, while the Perugia region ranks first in number of hives with 22,600. The Italian honey industry is concentrated in the northern Alpine and central Apennine regions, where climatic conditions are favorable.—Assistant Trade Commissioner J. M. Kennedy, Rome, October 24, 1929.

PACKAGE BEES and QUEENS

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Have been shipping for years.

BLUE BONNET APIARIES, Mercedes, Texas

BOOKS ABOUT BEES

AMERICAN HONEY PLANTS, by Frank C. Pellett—Know your honey plants. Be able to place your apiaries most intelligently. This book will help you. Profusely illustrated with photos by the author. 400 pages. Postpaid price \$3.00.

DADANT SYSTEM OF BEE-KEEPING, by C. P. Dadant—Pointers on the use of the large hive. Gives results of years of actual experience by the Dadants. Cloth, 120 pages, illustrated. Price \$1.00. Also available in French, Spanish and Italian editions.

BEEKEEPING IN THE SOUTH, by K. Hawkins—A special study of southern problems, southern plants, southern honeyflows. One dollar, postpaid.

SCIENTIFIC QUEEN-REARING, by G. M. Doolittle. Reprint of the original work of Doolittle. Leatherette binding. Price 50 cents.

PRACTICAL QUEEN-REARING, by Frank C. Pellett—Deals with all phases and all methods of queen-rearing. A new edition just out. Latest methods given. Price \$1.00.

OUTAPIARIES, by M. G. Dadant. Outline of equipment, management and placing of outyards. 110 pages, cloth, illustrated. Price \$1.00.

CONTROLLED MATING OF QUEENBEES, by L. R. Watson—Gives the author's method of artificial queen-rearing. First step in scientific breeding of bees. 50 pages, paper cover. Price \$1.00.

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

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Our Non-Sag Brood Foundation has given absolute satisfaction the past season. Not one word of fault, but any number of commendations. Our foundation business doubled last season, and we are ready to book your orders now. Write us for samples and prices for early orders, which will in all cases be as satisfactory as the quality of our foundation. We furnish a full line of hives, sections, and all other supplies.

GUS DITTMER COMPANY, Augusta, Wis.

YANCEY HUSTLERS—In Packages

Beautiful Three-band Italians—Record Honey-makers
Book your order now for spring delivery; no advance payment required.
Prices and full particulars on request.
We guarantee to please you.

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Miscellaneous

BEE BOOKS

For Winter Reading

Here is a list of bee books on general, special, and technical subjects, as well as on nature subjects, that should appeal to our readers as desirable for their libraries for winter reading

We have a supply of all of these books in stock, but please anticipate your desires as much as possible, so that we may have time to keep our shelves replenished. Some of our books come from European sources, and naturally arrive slowly.

	Postpaid
Spirit of the Hive, Dallas Lore Sharp	\$2.50
Flower and the Bee, J. H. Lovell	2.00
Bees and Beekeeping, Cheshire (2 vol.)	6.00
Fifty Years Among the Bees, Miller	1.50
Embryology of the Honeybee, J. A. Nelson	2.00
Anatomy and Physiology of the Honeybee, Snodgrass	3.50
Mysteries of the Hive, D. Evrard	2.50
Manual of the Apiary, A. J. Cook	1.20
Honeybees and Fairy Dust, (children), M. G. Phillips	2.00
The Yankee Abroad, Harry Lathrop	1.00
Life of the Bee, M. Maeterlinck	2.25
Bee Anatomy, Annie D. Betts	1.25
Law of the Honeybee, Campbell	1.00
Practical Bee Guide, J. G. Digges	1.50
Lore of the Honeybee, T. Edwardes	3.50
Bee People, Morley	1.50
Beekeeping, E. F. Phillips	4.00
Advanced Bee Culture, W. Z. Hutchinson	1.00
How to Keep Bees, Anna B. Comstock	1.75
A B C and X Y Z of Bee Cul- ture, A. I. and E. R. Root	2.50
Unsere Bienen, Ludwig	3.60
Pearce Method of Beekeeping	.25
Biggie Bee Book, Biggie	.45
Honey-Way Menus, Fischer	1.00
Honey Plants of North America, Lovell	2.50
Maladies des Abeilles, Baldensperger	.50
Les Produits du Rucher, Caillas	1.50
Bee Master of Warriow, Edwardes	1.00
Our Backdoor Neighbors, Pellett	1.50
Birds of the Wild, Pellett	1.75
Productive Beekeeping, Pellett	3.00
Beginner's Bee Book, Pellett	1.50
How to Succeed with Bees, Hawkins and Atkins	.59

Send all orders to

American Bee Journal
Hamilton, Illinois

Some Unique Ways in Honey Marketing

By Jane Rider

ARE you searching about for some unique way of marketing your honey supply which will bring to you a neat profit from your apiary as well as to make folks remember that you "sell honey"? Traveling over Iowa, Illinois, Indiana and Ohio every year, I have had a splendid opportunity of seeing how other bee men are doing it. As a consequence I shall give you some of their methods and among these you may find one or more which you can lift and use in your particular case.

Most of us like to eat honey with biscuits. One Saturday noon I happened into a small southern Illinois town and was wondering where to go to eat. The county agent asked me to go down to Mrs. Johnson's Honey Shop. All curiosity, I went with the agent for lunch. Mrs. Johnson and her three daughters were baking biscuits, serving honey with them and were making coffee for the throng that besieged the place. How did they get started? The agent explained this to me as we lunched.

The Johnsons had had an abundance of honey and knew no way to dispose of it. Someone suggested to the county agent that they might serve lunches to the busy merchants on Saturdays, in town, so he mentioned the fact to the Johnsons. In this they saw a good way to use up their honey supply. They rented a vacant building, where they erected some counters. Here they baked biscuits and on Saturdays served them with honey and good coffee. The business grew so that the daughters remained in town and kept the building open all week through. Here they sold candy made from honey; ice cream which contained honey; cakes and cookies made from honey, and later introduced other farm products which were ordered. The girls wore caps and aprons of crepe paper in honeybee design and the place was decorated accordingly.

Another splendid idea I found was the honey social. One bee man happened to hear the young people of his church wishing for a new kind of social. He thought of the great supply of honey which he could not market, so he suggested a honey social. He gave them a tiny commission on every bit of honey they used and a commission on every pound of strained or comb honey which they sold directly. It was a diversion for the young people's schedule and meant a market for him.

We all know in this day and age that any roadside accommodation for the passing motorist makes a hit. As a consequence an Indiana farmer

and bee man put down a well at the road on his farm. After that he erected a tent, where he permitted his three young sons to sell honey and all its by-products. Candies, cakes, cookies, honey milk-shakes and pails and glasses of honey were the attraction, but the sign "Free Water," at every rod for miles each way, made folks stop. Boiling radiators found relief from this well, and in return for the water six out of every ten motorists returned the favor by buying honey in some form. Carbide lights helped the boys on the job even at night.

In central Illinois is a man who has just published the tenth edition of his "Honey Cook Book." Five or six years ago he had a honey supply with no market. Rather than give it away, he offered, through the columns of nearby newspapers, a cake of honey for the best recipe submitted to him each week for several weeks. In his advertising space he carried the name of each weekly prize winner and the winning recipe. It may sound exaggerated to say that he received three thousand recipes by the end of the contest. These the editor of the newspaper offered to print into a recipe book at very small cost. Of course many of the recipes were duplications, so when he had finished he had five hundred tested recipes printed into a beautiful booklet which advertised his apiary as well. He sold them for 25 cents, which was below the cost of printing, but he figured each book sold would bring him five dollars worth of business at some future date.

Another bee man happened to be a good speaker, so he asked to speak at one of the regular meetings of the town's women's club. He told of the uses of honey, of its value over sugar, and he passed out recipes which he had had typed on ordinary bond paper. There were recipes for dishes for the sick; uses for honey in the reducing diet; recipes to be used for parties and family dinners. As he told me the story he laughingly exclaimed: "I should have paid them to let me speak, for it was the best ad I could have had. I sold my entire output of honey to those women and their friends and called on my friends and neighbors to help supply the trade."

In another community there were six live bee men. These men got together and declared "Honey Week." They carried a box of honey to each merchant and asked him to display it prominently irrespective of his trade. The weekly newspaper carried several splendid articles on "Health by

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Honey," and with them appeared a number of splendid recipes. In the theatres they placed a booth of products made from honey, and the screen also carried a tribute to them.

On one of my itineraries I saw an old Ford painted and built to resemble a bee. This was the official truck which carried the honey products from a live-wire apiarist's farm about the country. It was to be seen at baseball games, band concerts, farm bureau picnics and every other public function, and it always told its own story—it had honey in some form for sale wherever it was to be found.

Some bee men are fortunate enough to have wives or daughters that are good cooks. Last summer I was at a four-day institute held in a central Illinois town. I think every woman in that town was there with notebook and pencil. There stood the two charming daughters of the community bee man giving a demonstration on "Honey Uses in Cooking." The electric company, wishing to do a little advertising, too, had offered the use of two electric ranges for the girls' use. Here they demonstrated the preparation of the various candies, cakes, cookies and drinks which contained honey. These recipes were taken down by the ladies attending and many other recipes were written out on blackboards which they had no time to give, but which the women might copy. They saved the institute the price of one lecturer or entertainer, and yet the town women thoroughly appreciated the splendid demonstrations. Many were the honey sales made in the stores where the bee man had his supply of honey placed, after the demonstrations daily.

There are the usual ways of advertising through the newspapers and magazines, but the more unique ways make more of an appeal to the sweet tooth of the public and very often cause more of a demand than the ordinary apiarist can supply.

Death of Noted Beekeeper

The French bee magazines announce the death of R. Hommell, a French writer on bees, author of "Apiculture," Agricultural Engineer, Knight of the Legion of Honor of France, and General Secretary of the Federation of Beekeepers' Associations of France. He was born in Alsace in 1864, and after the war of 1870, when Alsace-Lorraine became a German province, his father and the family left Alsace and emigrated into France. He returned to Alsace after the World War, when that country again became French.



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are now ready to book for spring 1930. The very best strain of Golden and Three-banded Italians that can be produced. Prices as follows:

Special—A two-frame nucleus with three pounds of bees and a select young queen introduced, for \$4.75 each.

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Two- and three-frame nucleus with select young queens same prices as two- and three-pound packages.

Also combless packages shipped on sugar syrup in light, roomy cages, same prices as comb packages.

Special discount on orders for fifty packages and nucleus or more.

All bees are shipped on standard Hoffman frames of brood and honey, except combless packages, a health certificate with each shipment. All loss will be immediately replaced upon receipt of bad order report signed by express agent. Address

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*Victor Bees, entered by customers, have won
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Queens, Package Bees, Nuclei, Colonies—Any Number, Any Time
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Write for My Prices Now for Early Orders
Each shipment under health certificate. Safe arrival, satisfaction guaranteed.

W. O. VICTOR, Uvalde, Texas

ROOT SERVICE
FROM

CHICAGO

YOU WILL HAVE GREATEST
PLEASURE

in assembling your beehives and supers for next season now, when you have plenty of spare time. It will be a great satisfaction, too, to have everything ready when needed.

Let us quote you now on the list of things you want.

A. I. ROOT CO., OF CHICAGO
224 W. Huron Street, CHICAGO, ILL.

CAUCASIAN QUEENS AND BEES FOR 1930

We are booking orders now for queens and bees for spring delivery. No deposit asked. Queens we are offering for 1930 will be daughters and granddaughters from direct imported mothers. These imported queens were bred by experts in the homeland of the grey bees. This gives you the opportunity of buying queens of very select stock. The average tongue length of a sample of bees taken from one colony was 6.76 millimeters. Write for prices.

BOLLING BEE CO., Bolling, Alabama

IT WILL COST YOU NOTHING

to get our prices on the bee supplies you will need. Then why not sit down and make out your list of requirements and send it to us for special quotations?

CHARLES MONDENG COMPANY
159 Cedar Lake Road Minneapolis, Minnesota

Robbing Remedies

By Jes Dalton

While robbing among bees is something like it is among humans—not always directly their fault,—yet it cannot be tolerated and must be suppressed.

It is probable that almost every case of robbing among bees can be traced to some act on the part of the beekeeper. He either leaves honey exposed or is careless and handled the bees at a bad time, and so on.

In shipping packages, rearing and breeding queens, however, robbing cannot always be avoided. The honey producer can often avoid opening and handling bees when conditions are unfavorable, but the package man must fill and ship on time.

I have found three things of great advantage: "Smudge pots," buckets filled with smudges and carried around to be set on the windward side of the hives which are being worked. In central Louisiana I had an old contractor's wheelbarrow. We would build a good-sized fire on it and wheel it up to a hive, pile on green weeds, and work in the fog.

We also used methods like this in the reconstruction work in Louisiana in the fall of the season.

Another mighty handy device used on a small scale after bees have started robbing is a common fly repellent, to be used in a spray gun. In working nuclei in queen-rearing, especially in the fall when honey comes in spasmodically, and with a strong odor, often a bunch of bees will pitch onto a small nucleus before the beekeeper knows it. If he will set it up at once and spray every crack where the robbers are hanging about, trying to get in, he will be surprised how quickly they leave. Bees can stand the scent of this the second time. Throw a handful of grass over the entrance and spray the grass, and the bees will stop trying to dig down through. Spray all along the cracks where they hang around and where they gather in the weeds or on the ground. If they continue to hang around, just stand still and, when they all gather, spray quickly among them. This is the best thing I have seen to stop the bees from sticking around in such a determined way.

When one is working nuclei right along, in the season and out, usually a number of these old bees follow from hive to hive, singing around and calling others. I often make a box to resemble the nucleus or whatever they are bothering, bore a hole or two in it and insert a long funnel of screen wire to make a bee escape comb going into the box. Have a screen top.

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Now when they persist in worrying a nucleus, shut the nucleus, move it to a new location, bait the trap with a little honey in a pan set inside under the screen and just under the escape cones. Smear a little honey along the cones and leave a piece of strong-scented comb in the pan.

You will be surprised, if you have never tried it, how quickly you will have practically all of them in this trap, and likewise what a few bees, after all, were making all the disturbance—usually from a hundred to a quarter of a pound of old, slick-worn bees.

You can remove the trap, set your nucleus back, or a stronger one.

I have used all these methods with success. Sometimes a hive will get knocked over by a storm or by stock and the bees will start robbing, and it may be next to impossible to stop them. Try plugging this hive, spraying all around it with a spray gun filled with insecticide as I have described.

In Search of Honey Bird

A motor caravan of scientists will soon attack the Kalahari Desert, rated as the world's worst dry spot. Although not as extensive as the Sahara, it is more arid, and its borders are haunted by untamed native tribes hostile to all strangers. But the Vernay-Lang expedition of the Field Museum of Natural History expects to traverse it, and to explore the neighboring lands along the Botletle River, the Chobe swamps, and the British protectorate of Bechuanaland.

Their principal object will be to seek new and rare species of animals and birds, to add to the world's stock of zoological knowledge. Two of the known, but scarce, species sought are the giant sable antelope, one of the rarest of hoofed mammals, and the honey bird.

The honey bird is a creature of almost mythical behavior. African travelers state that when one of them sees a human being it whistles to attract attention, and then leads the way to a tree where wild bees have hived. It sits by while its human friends chop down the tree and take their fill of honey, and then proceeds to feast on the comb that is left, and especially on the young bee grubs.

New Zealand Honey Exports

The bulk of the honey shipments in New Zealand this year was packed in better condition than last year. Exports during the year ended March 31, 1929, amounted to 1,260,000 pounds, valued at about \$408,660.—Assistant Trade Commissioner Chas. F. Kunkel, Wellington, September 30, 1929.



Walter T. Kelley, Prop.
Gulf Coast Bee Co.

This year I am offering beekeepers greater values than ever. One example of my low prices is the CYPRESS hive body with standard soft white pine frames (8- and 10-frame sizes same price) pictured below.



The hive body pictured here is a retouched photograph. This picture shows the beautiful grain of the RED CYPRESS that I use and which is mentioned in the following testimonial.

5 CYPRESS hive bodies
with soft white pine frames
K. D. in
cartons \$4.95

"The grain of the wood was so nice that I did not paint the hives, just gave them two good coats of oil."

A. HAMILTON, South Dakota.

I use LOUISIANA RED TIDEWATER CYPRESS (The Wood Eternal) in all parts exposed to weather (frames of white pine).

Write today for your free copy of my 1930 catalogue.

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- That you are going to get satisfaction or your money back.

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Young queens bred for honey.

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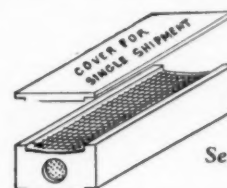
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